PIONEER®
*The Art of Entertainment*

# Service Manual

**ORDER NO.**
**RRV1372**

## DOLBY SURROUND AC-3 & PRO LOGIC PROCESSOR

# SP-99D
# SP-D07

### THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

| Type | Model | | Power Requirement | The voltage can be converted by the following method. |
|---|---|---|---|---|
| | SP-99D | SP-D07 | | |
| KU/CA | ○ | — | AC120V | ———— |
| SL | — | ○ | AC110V/120–127V/220–230V/240V | With the voltage selector |

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# 1. SAFETY INFORMATION

**This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.**
**Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.**

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

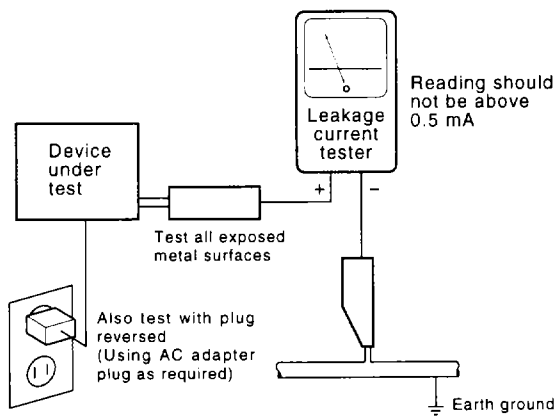
## (FOR USA MODEL ONLY)

### 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

#### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Leakage current tester
Reading should not be above 0.5 mA
Device under test
+
-
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

### 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage , etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

# 2. EXPLODED VIEWS, PACKING AND PARTS LIST

*NOTES :*

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ● "are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

## 2.1 PACKING

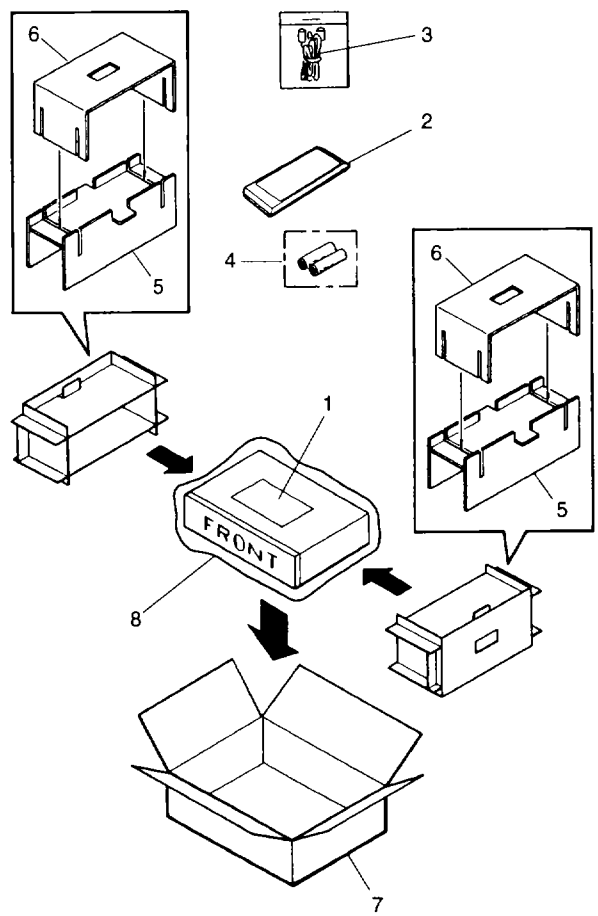
### ■ CONTRAST OF SP-99D/KU/CA AND SP-D07/SL

SP-99D/KU/CA and SP-D07/SL have the same construction except for the following:

| Mark | No. | Description | Part No. | | Remarks |
|---|---|---|---|---|---|
| | | | SP-99D/KU/CA | SP-D07/SL | |
| | 1 | Operating instructions (English) | ARB7052 | Not used | |
| | 1 | Operating instructions (English/Chinese/Spanish) | Not used | ARE7052 | |
| | 2 | Remote control unit (CU-SP004) | AXD7065 | Not used | |
| | 2 | Remote control unit (CU-SP003) | Not used | AXD7066 | |
| | 5 | Spacer A | AHA7077 | AHA7082 | |
| | 6 | Spacer B | AHA7081 | AHA7083 | |
| | 7 | Packing case | AHD7200 | AHD7204 | |

### ■ PARTS LIST FOR SP-99D/KU/CA

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | OPERATING INSTRUCTIONS (English) | ARB7052 |
| | 2 | REMOTE CONTROL UNIT (CU-SP004) | AXD7065 |
| | 3 | PLUG CORD | ADE7007 |
| NSP | 4 | BATTERY (R03, AAA) | AEX-021 |
| | 5 | SPACER A | AHA7077 |
| | 6 | SPACER B | AHA7081 |
| | 7 | PACKING CASE | AHD7200 |
| | 8 | PACKING SHEET | AHG1016 |



## 2.2 EXTERIOR

### ■ CONTRAST OF SD-99D/KU/CA AND SP-D07/SL

SP-99D/KU/CA and SP-D07/SL have the same construction except for the following:

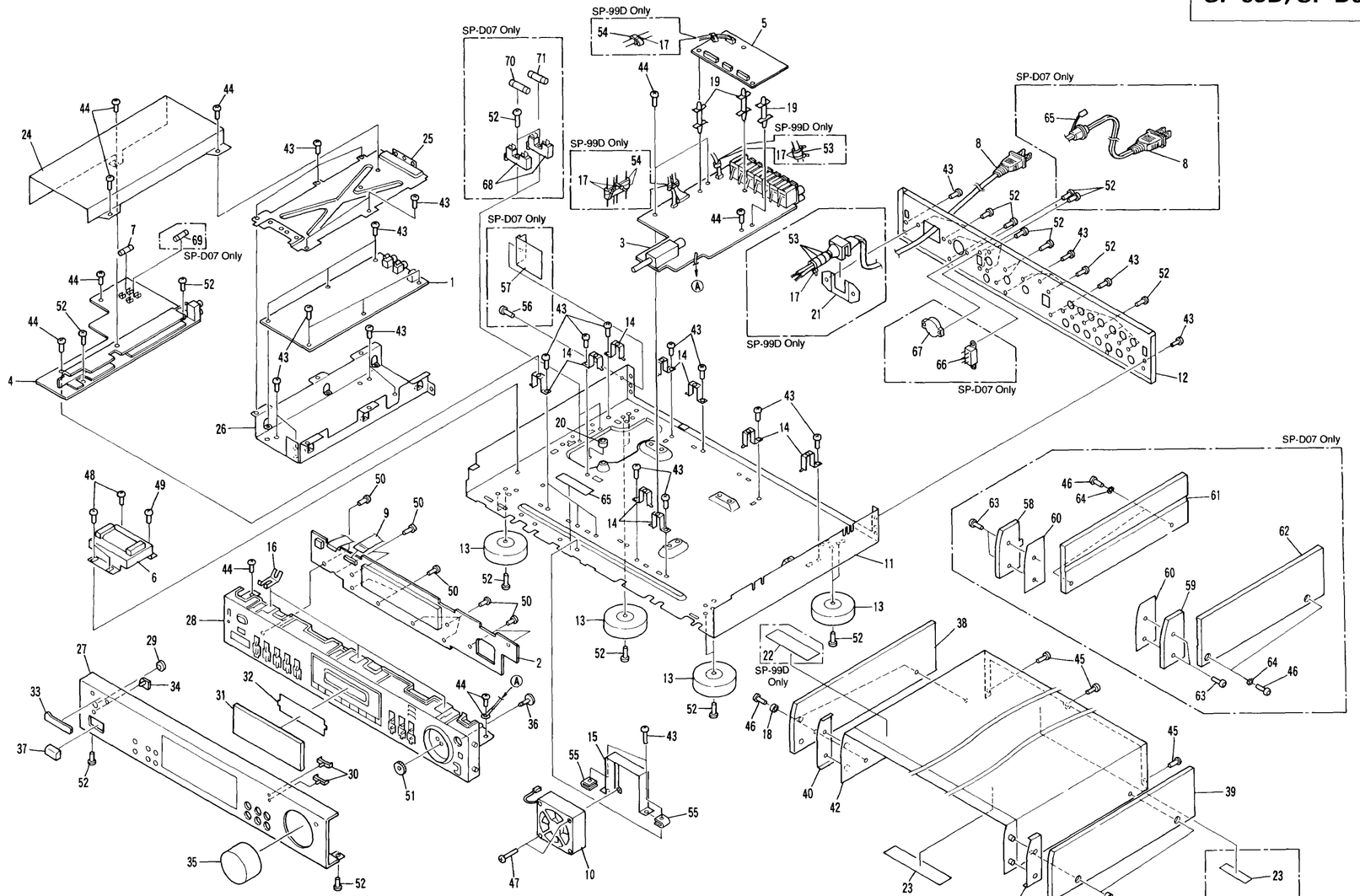
| Mark | No. | Description | Part No. | | Remarks |
|---|---|---|---|---|---|
| | | | SP-99D/KU/CA | SP-D07/SL | |
| ⚠ | 6 | Power transformer (AC120V) | ATT7014 | Not used | |
| ⚠ | 6 | Power transformer (AC110V/120–127V/220–230V/240V) | Not used | ATT7013 | |
| ⚠ | 7 | Fuse (800mA/125V, FU201) | AEK1011 | Not used | |
| ⚠ | 7 | Fuse (T1AL250V, FU201) | Not used | AEK–508 | |
| ⚠ | 8 | AC power cord | ADG1072 | ADG1049 | |
| NSP | 11 | Chassis | ANA7024 | ANA7026 | |
| | 12 | Rear panel | ANC7254 | ANC7256 | |
| | 13 | Foot (Front/Rear) | AMR1159 | Not used | |
| | 13 | Isulater assy (Front/Rear) | Not used | AMR2140 | |
| | 18 | Wood collor | AEC1165 | Not used | |
| | 21 | AC cord spacer | ANG1153 | Not used | |
| NSP | 22 | FCC label | AAX1736 | Not used | |
| | 23 | 65 label | ORW1069 | Not used | |
| | 27 | Front panel | ANB7025 | ANB7026 | |
| | 28 | Panel base Assy | AMB7293 | AMB7294 | |
| | 32 | FL Filter | AAK7169 | AAK7170 | |
| | 33 | Name plate | AAM1001 | VAM1051 | |
| | 35 | Rotary knob M | AAB7053 | AAB7055 | |
| | 36 | Kin button | AAD1682 | AAD2469 | |
| | 37 | Power button | AAD2466 | AAD2468 | |
| | 38 | Side board | AMS7003 | Not used | |
| | 39 | Side boaed | AMS7004 | Not used | |
| | 40 | Side gold moul L | AAP7021 | Notused | |
| | 41 | Side gold moul R | AAP7022 | Not used | |
| | 42 | bonnet | AZN7248 | AZN7249 | |
| | 46 | Screw | ABA1092 | ABA7010 | |
| | 53 | Ferrite core (L201, L203–L205) | ATX1015 | Not used | |
| | 54 | Ferrite core (L202, L206, L207) | ATX7004 | Not used | |
| NSP | 56 | Rivet | Not used | AEC1352 | |
| NSP | 57 | Barrier | Not used | AEE1054 | |
| | 58 | Panel ST. L | Not used | AAP7018 | |
| | 59 | Panel ST. R | Not used | AAP7019 | |
| | 60 | Panel ST. Ruber | Not used | AAP7020 | |
| NSP | 61 | Side panel L | Not used | AAH7003 | |
| NSP | 62 | Side panel R | Not used | AAH7004 | |
| | 63 | Screw | Not used | ABA1169 | |
| | 64 | Washer | Not used | WH30FUC | |
| | 65 | Strain relief | Not used | AEC882 | |
| ⚠ | 66 | Voltage selector (S201) (AC110–127V/220–240V) | Not used | AKX1007 | |
| ⚠ | 67 | Voltage selector (S202) (AC110V/120–127V/220–230V/240V) | Not used | AKX1004 | |

| Mark | No. | Description | Part No. | | Remarks |
|---|---|---|---|---|---|
| | | | SP-99D/KU/CA | SP-D07/SL | |
| ⚠ | 68 | Fuse holder (H205, H206) | Not used | AKR1005 | |
| ⚠ | 69 | Fuse (T800mAL250V, FU202) | Not used | AEK-507 | |
| ⚠ | 70 | Fuse (T500mAL250V, FU203) | Not used | AEK-505 | |
| ⚠ | 71 | Fuse (T400mAL250V, FU204) | Not used | AEK-504 | |

## ■ PARTS LIST FOR SP-99D/KU/CA

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | AC-3 ASSY | AWX7017 |
| | 2 | AC-3 FL ASSY | AWZ7686 |
| | 3 | AC-3 VOL ASSY | AWZ7687 |
| | 4 | AC-3 POWER SUPPLY ASSY | AWZ7688 |
| | 5 | AC-3 SW ASSY | AWZ7689 |
| ⚠ | 6 | POWER TRANSFORMER (T201) | ATT7014 |
| ⚠ | 7 | FUSE (800mA/125V, FU201) | AEK1011 |
| ⚠ | 8 | AC POWER CORD | ADG1072 |
| | 9 | FLEXIBLE CABLE | ADD1128 |
| | 10 | FAN MOTOR | AXM7005 |
| NSP | 11 | CHASSIS | ANA7024 |
| | 12 | REAR PANEL | ANC7254 |
| | 13 | FOOT (FRONT/REAR) | AMR1159 |
| NSP | 14 | PCB HOLDER | ANG7038 |
| NSP | 15 | FAN HOLDER | ANG7039 |
| | 16 | SPRING | ANK1121 |
| | 17 | NYLON BINDER | AEC-093 |
| | 18 | WOOD COLLOR | AEC1165 |
| NSP | 19 | PCB SUPPORT | AEC7036 |
| NSP | 20 | SPACER | AEC7037 |
| | 21 | AC CORD SPACER | ANG1153 |
| NSP | 22 | FCC LABEL | AAX1736 |
| | 23 | 65 LABEL | ORW1069 |
| | 24 | AIR GIDE | AEE7004 |
| | 25 | CASE A | ANG7035 |
| | 26 | CASE B | ANG7042 |
| | 27 | FRONT PANEL | ANB7025 |
| | 28 | PANEL BASE ASSY | AMB7293 |
| | 29 | REMOCON WINDOW | AAK2457 |
| | 30 | LED LENS | AAK2459 |
| | 31 | ACRYL PANEL | AAK7168 |
| | 32 | FL FILTER | AAK7169 |
| | 33 | NAME PLATE | AAM1001 |
| | 34 | LED LENS | PNW2019 |
| | 35 | ROTARY KNOB M | AAB7053 |

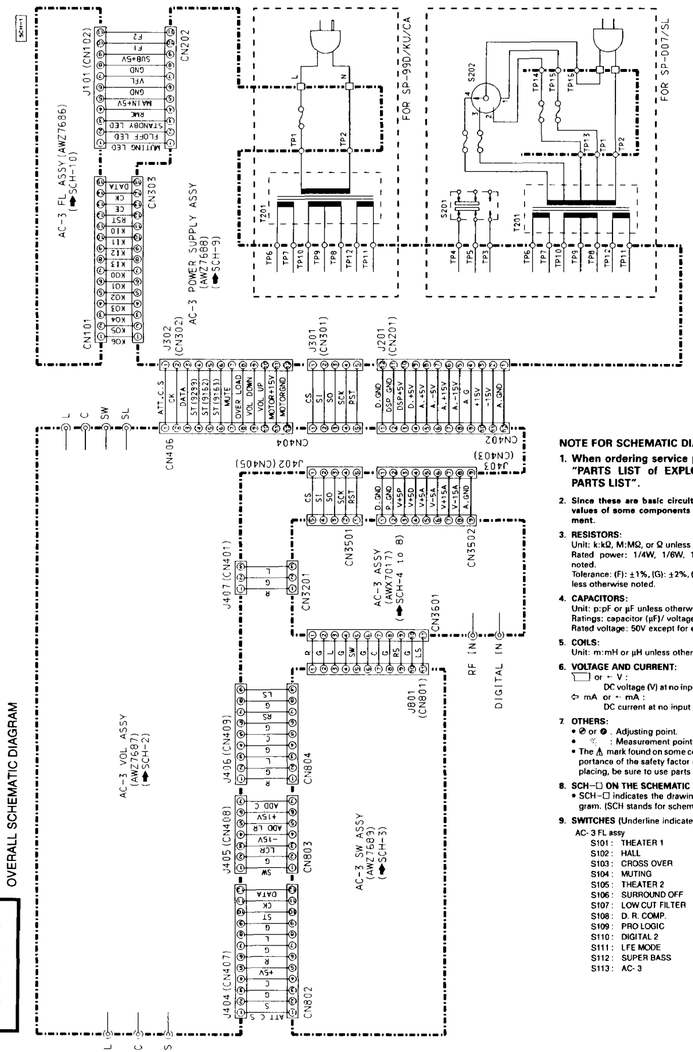
| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 36 | KIN BUTTON | AAD1682 |
| | 37 | POWER BUTTON | AAD2466 |
| | 38 | SIDE BOARD | AMS7003 |
| | 39 | SIDE BOARD | AMS7004 |
| | 40 | SIDE GOLD MOUL L | AAP7021 |
| | 41 | SIDE GOLD MOUL R | AAP7022 |
| | 42 | BONNET | AZN7248 |
| | 43 | SCREW | ABA1009 |
| | 44 | SCREW | ABA1011 |
| | 45 | SCREW | ABA1048 |
| | 46 | SCREW | ABA1092 |
| | 47 | SCREW | ABZ30P300FMC |
| | 48 | SCREW | BBZ40P060FCU |
| | 49 | SCREW | BBZ40P100FCU |
| | 50 | SCREW | BPZ26P080FMC |
| | 51 | NUT | NK90FUC |
| | 52 | SCREW | ABA-298 |
| | 53 | FERRITE CORE (L201, L203-L205) | ATX1015 |
| | 54 | FERRITE CORE (L202, L206, L207) | ATX7004 |
| NSP | 55 | SPACER | AEE7006 |




NOTE : Screws adjacent to ▼ mark on the product are used for disassembly.

# 3. SCHEMATIC AND PCB CONNECTION DIAGRAMS

## 3. 1 OVERALL SCHEMATIC DIAGRAM



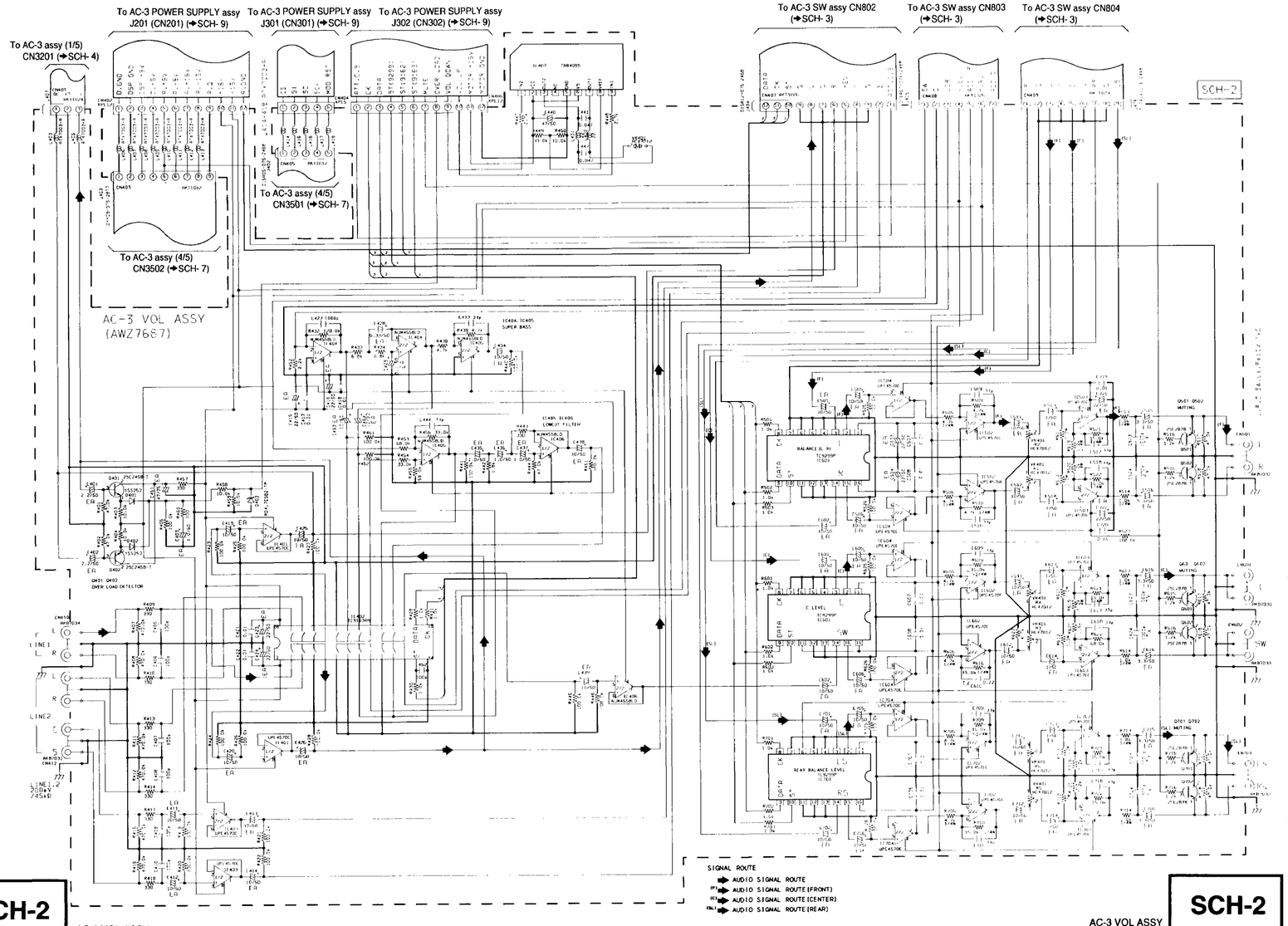

**NOTE FOR SCHEMATIC DIAGRAMS** (Type 2A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ▭ or ⊣⊢ V :
   DC voltage (V) at no input signal unless otherwise noted.
   ⇨ mA or ⊣ mA :
   DC current at no input signal unless otherwise noted.
7. **OTHERS:**
   • ⊘ or ⊘ : Adjusting point.
   • ⊣ ⊢ : Measurement point.
   • The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH-□ ON THE SCHEMATIC DIAGRAM:**
   • SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

AC- 3 FL assy

| | | | |
|---|---|---|---|
| S101 : | THEATER 1 | S114 : | DIGITAL 1 |
| S102 : | HALL | S115 : | FRONT MODE |
| S103 : | CROSS OVER | S116 : | SUB WOOFER MODE |
| S104 : | MUTING | S117 : | ATT |
| S105 : | THEATER 2 | S118 : | AC- 3 RF |
| S106 : | SURROUND OFF | S119 : | CENTER MODE |
| S107 : | LOW CUT FILTER | S120 : | TEST TONE |
| S108 : | D. R. COMP. | S121 : | LINE 2 |
| S109 : | PRO LOGIC | S122 : | POWER |
| S110 : | DIGITAL 2 | S123 : | REAR MODE |
| S111 : | LFE MODE | S124 : | DISPLAY OFF |
| S112 : | SUPER BASS | S125 : | LINE 1 |
| S113 : | AC- 3 | | |

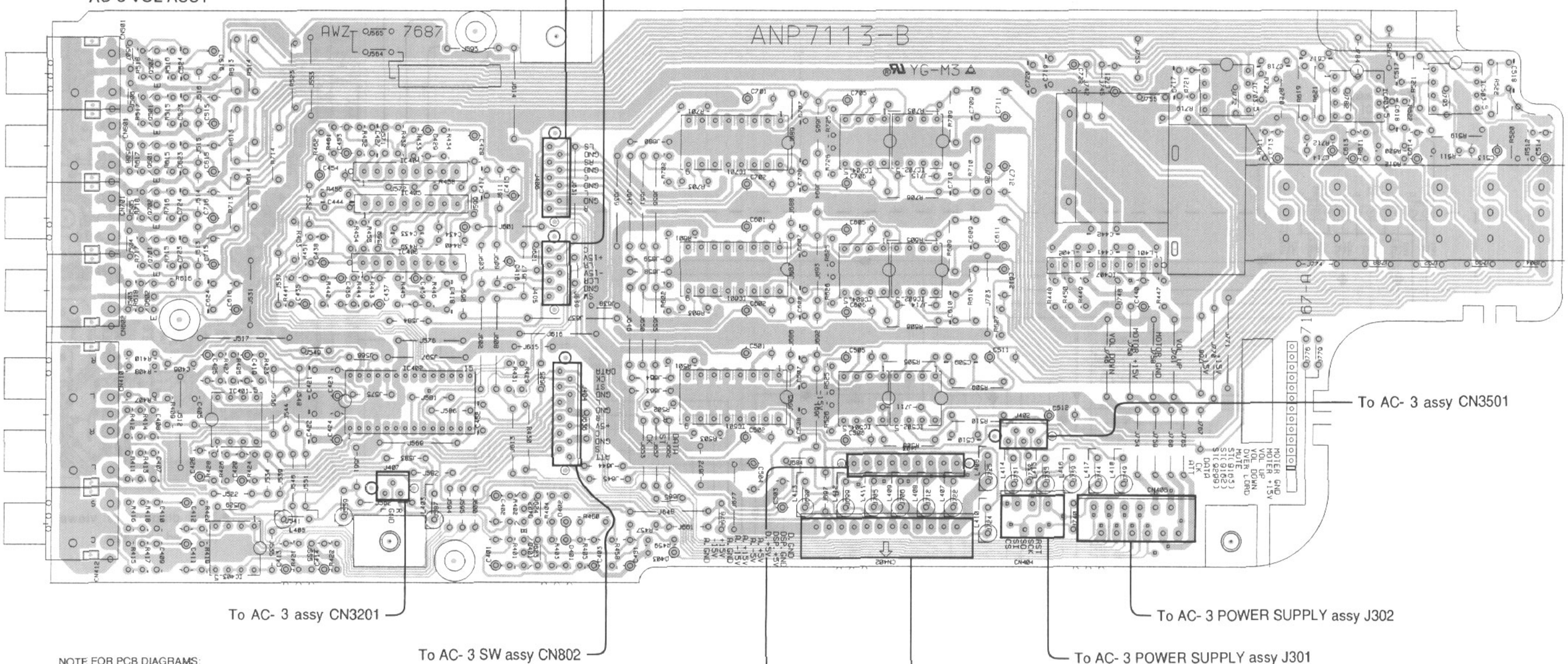
## 3. 2 AC-3 VOL ASSY


To AC-3 assy (1/5) CN3201 (➔SCH- 4)
To AC-3 POWER SUPPLY assy J201 (CN201) (➔SCH- 9)
To AC-3 POWER SUPPLY assy J301 (CN301) (➔SCH- 9)
To AC-3 POWER SUPPLY assy J302 (CN302) (➔SCH- 9)
To AC-3 SW assy CN802 (➔SCH- 3)
To AC-3 SW assy CN803 (➔SCH- 3)
To AC-3 SW assy CN804 (➔SCH- 3)
To AC-3 assy (4/5) CN3502 (➔SCH- 7)
To AC-3 assy (4/5) CN3501 (➔SCH- 7)
AC-3 VOL ASSY (AWZ7687)
SCH-2
SIGNAL ROUTE
AUDIO SIGNAL ROUTE
AUDIO SIGNAL ROUTE (FRONT)
AUDIO SIGNAL ROUTE (CENTER)
AUDIO SIGNAL ROUTE (REAR)
SCH-2
AC-3 VOL ASSY

PCB – 1

Q601 Q501 Q502
Q602 Q701 Q702
IC401 IC403
IC404–IC406
IC402
Q401 Q402
IC701
IC601
IC501
IC704 IC702
IC604 IC602
IC504 IC502
IC407
IC705
IC603
IC503
VR401

AC-3 VOL ASSY


AWZ 7687
ANP7113-B
YG-M3
7167-A
To AC- 3 SW assy CN804
To AC- 3 SW assy CN803
To AC- 3 assy CN3501
To AC- 3 assy CN3201
To AC- 3 SW assy CN802
To AC- 3 POWER SUPPLY assy J302
To AC- 3 POWER SUPPLY assy J301
To AC- 3 POWER SUPPLY assy J201
To AC- 3 assy CN3502

NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

| Symbol in PCB Diagrams | Symbol in Schematic Diagrams | Part Name |
|---|---|---|
| B C E | B C E B C E | Transistor |
| B C E | B C E B C E | Transistor with resistor |
| D G S | D G S D G S | Field effect transistor |
| | | Resistor array |
| | | 3- terminal regulator |

NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

| Symbol in PCB Diagrams | Symbol in Schematic Diagrams | Part Name |
|---|---|---|
| Q504 E Q504 | Q504 Q504 | Transistor |
| D203 D203 | D203 | Diode |
| C513 C513 | C513 | Capacitor (Polarized) |

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ⊖ or ⊐ shows cathode side.
5. The capacitor terminal marked with ⊖ or ⊏ shows negative terminal.

• This diagram is viewed from the mounted parts side.

The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

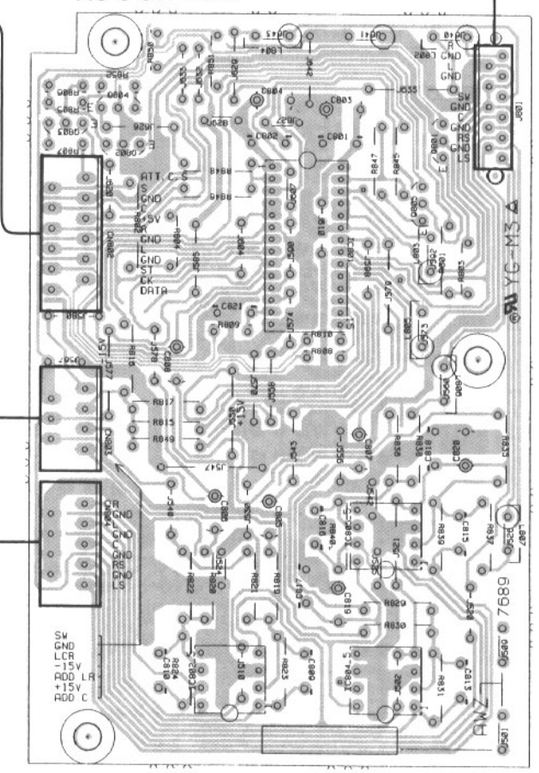
## 3. 3 AC-3 SW ASSY

PCB – 2

To AC- 3 assy CN3601

AC-3 SW ASSY

J404
To AC- 3 VOL assy — J405
J406




• This diagram is viewed from the mounted parts side.

To AC-3 assy (5/5)
CN3601 (➔SCH- 8)

SCH-3

To AC-3 VOL assy J404 (CN407)
(➔SCH- 2)

To AC-3 VOL assy J405 (CN408)
(➔SCH- 2)

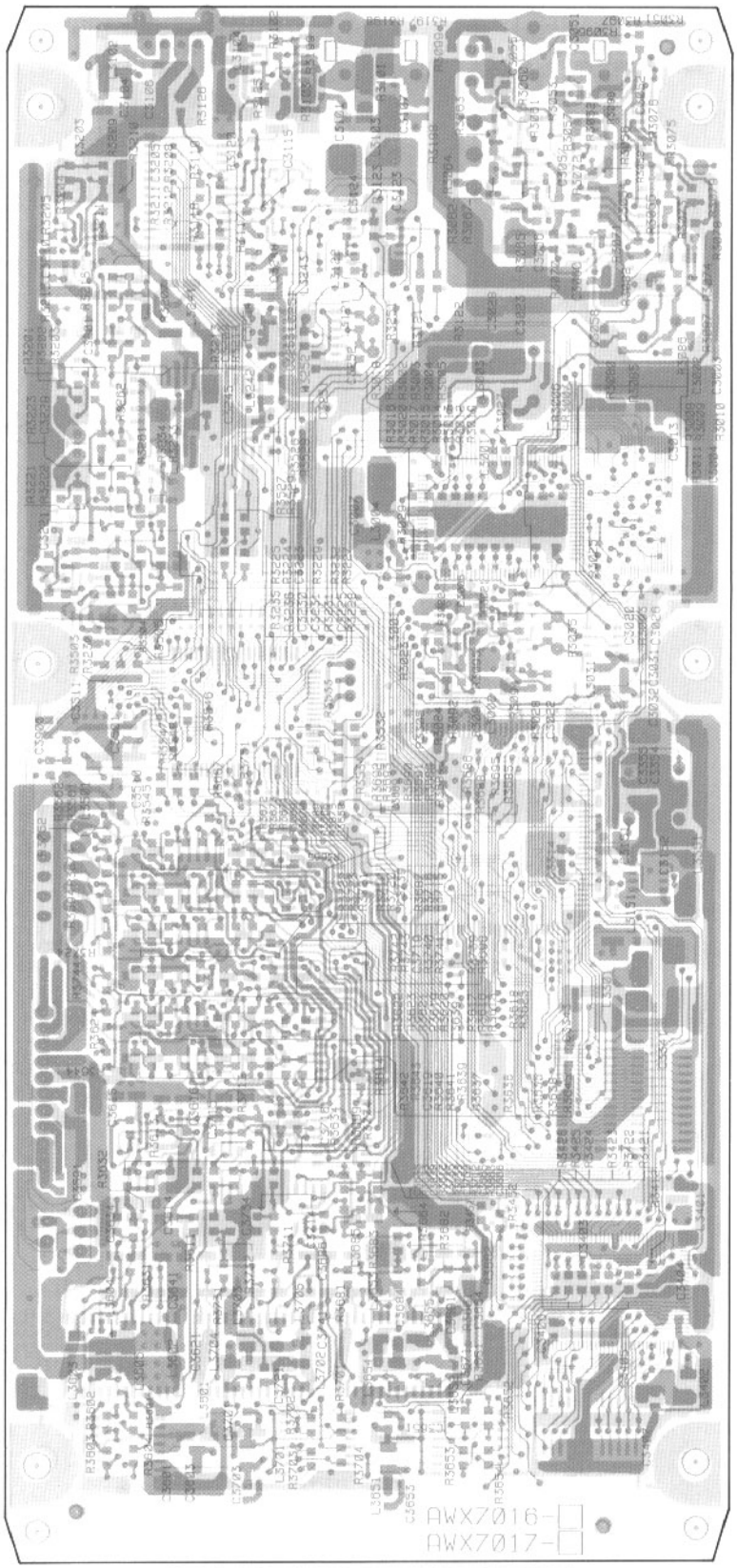
To AC-3 VOL assy J406 (CN409)
(➔SCH- 2)

AC-3 SW ASSY
(AWZ7689)

SIGNAL ROUTE
: AUDIO SIGNAL ROUTE
(F): AUDIO SIGNAL ROUTE (FRONT)
(C): AUDIO SIGNAL ROUTE (CENTER)
(SL): AUDIO SIGNAL ROUTE (REAR)

The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

- This diagram is viewed from the gray colored foil side.
- This is a multi-layer PCB.
  But information for both sides is shown.



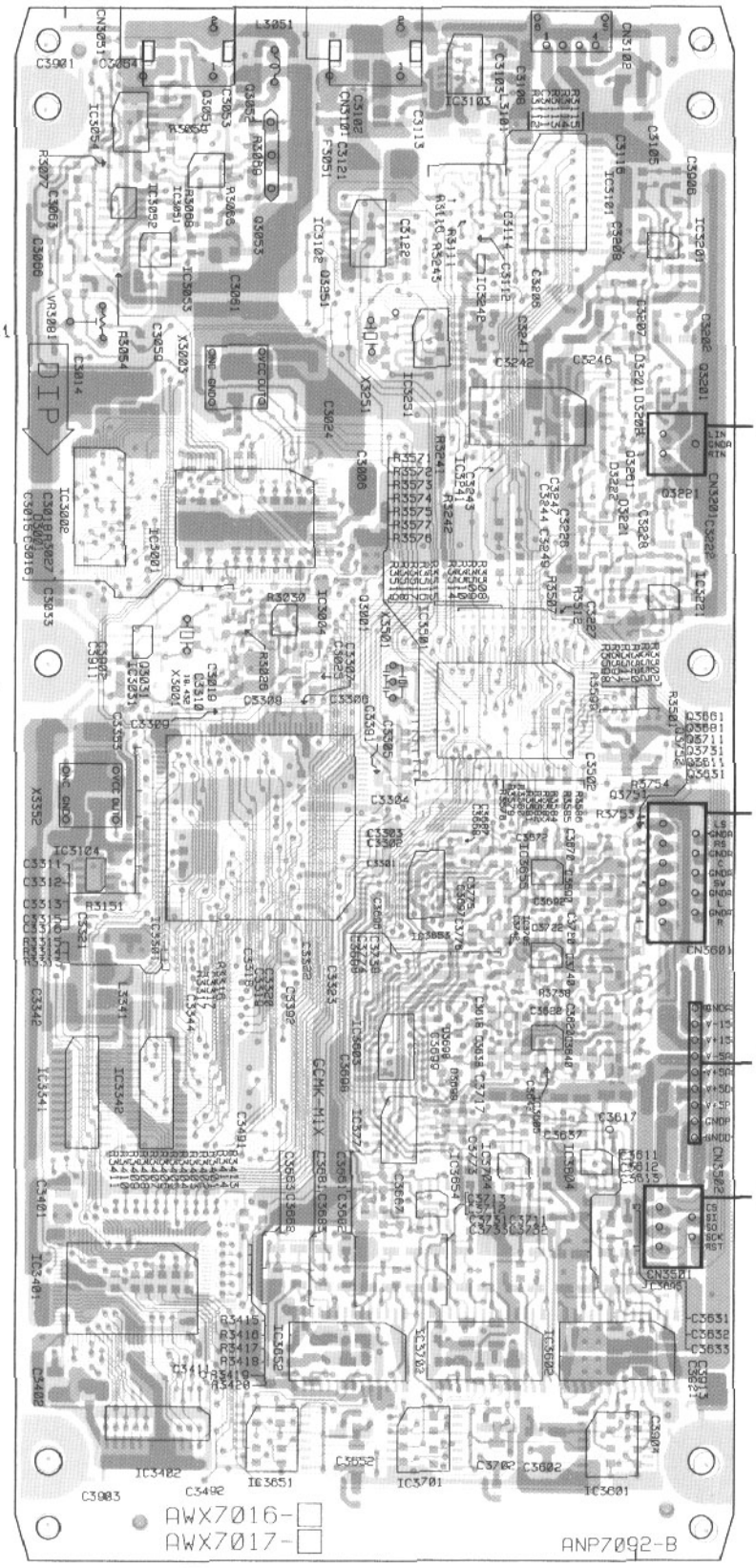

The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

PCB – 3

## 3. 4 AC-3 ASSY

- This diagram is viewed from the pink colored foil side.
- This is a multi-layer PCB.
  But information for both sides is shown.

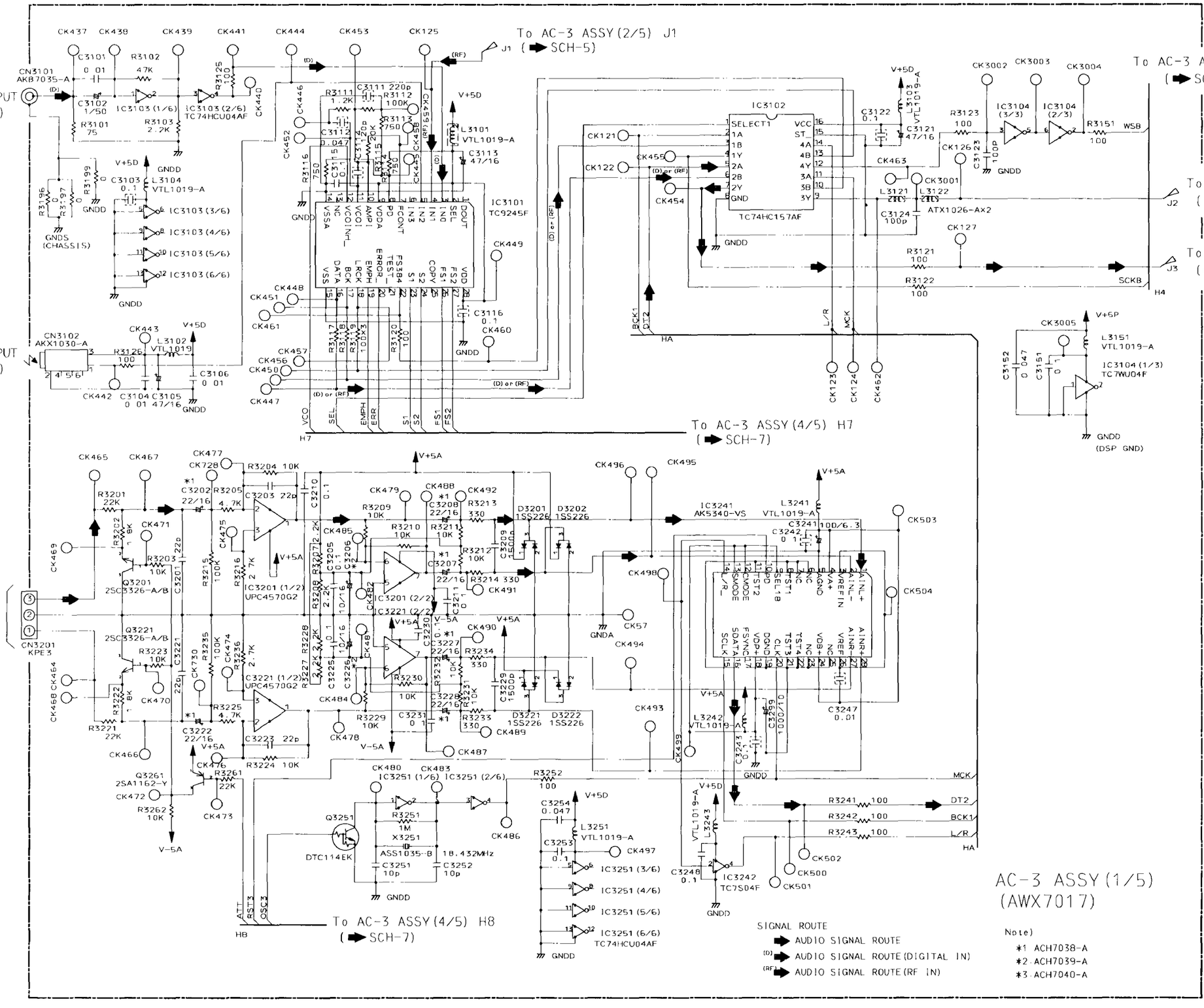
AC-3 ASSY



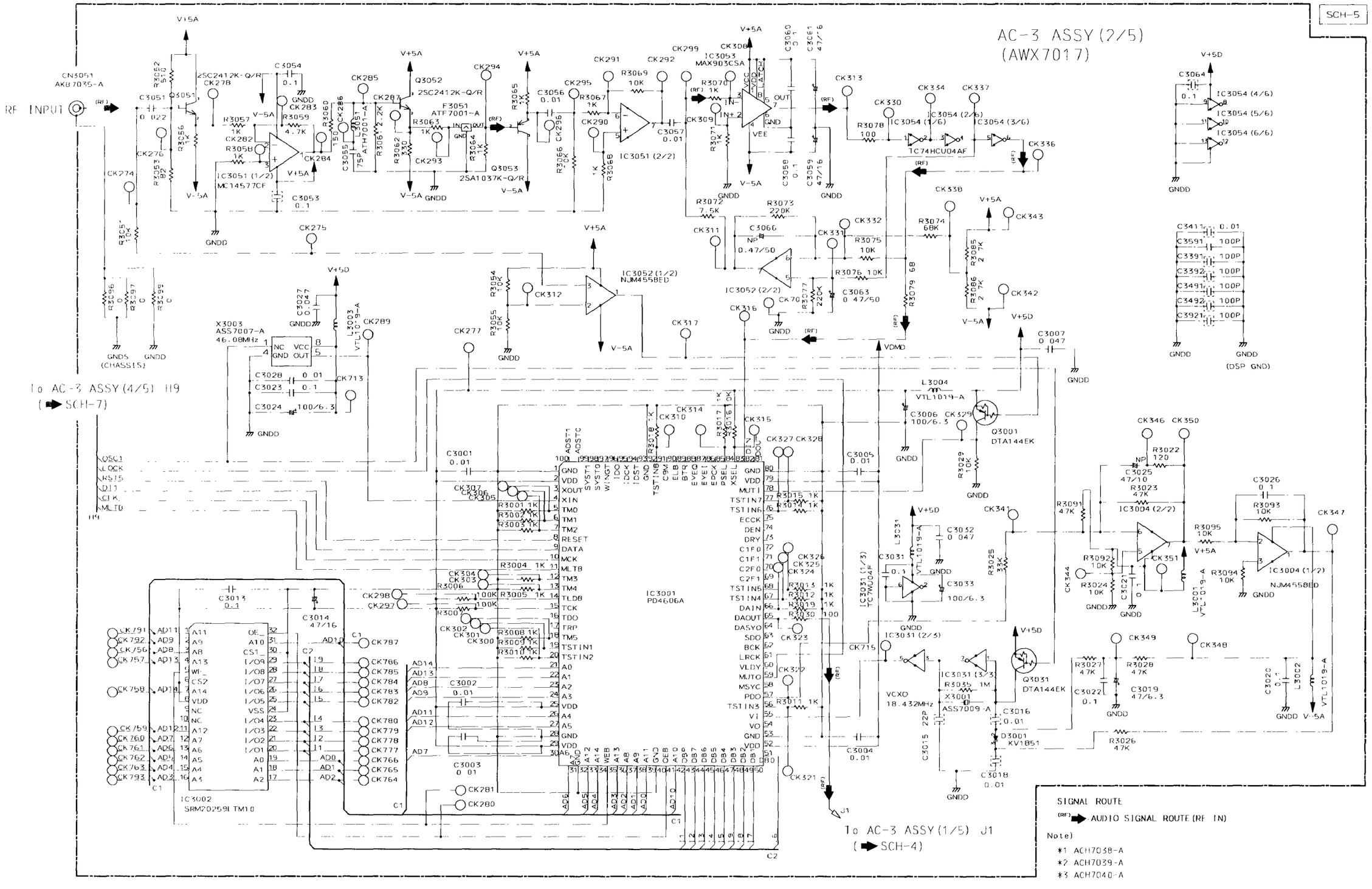

IC3103
Q3052
Q3051
IC3054
IC3051
IC3052 IC3101
IC3102
IC3053 Q3053 IC3201
IC3242
Q3251
IC3251
Q3201
IC3241
Q3261
IC3002 Q3221
IC3001
Q3001 IC3221
IC3004
IC3031
Q3031
Q3661
IC3501 Q3681
Q3711
Q3731
Q3611
Q3752
IC3301 Q3631
Q3751
IC3104 IC3655
IC3653
IC3705
IC3603 IC3605
IC3341
IC3342
IC3771
IC3604
IC3704
IC3654
IC3401
IC3702
IC3652 IC3602
IC3402
IC3701 IC3601
IC3651

The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

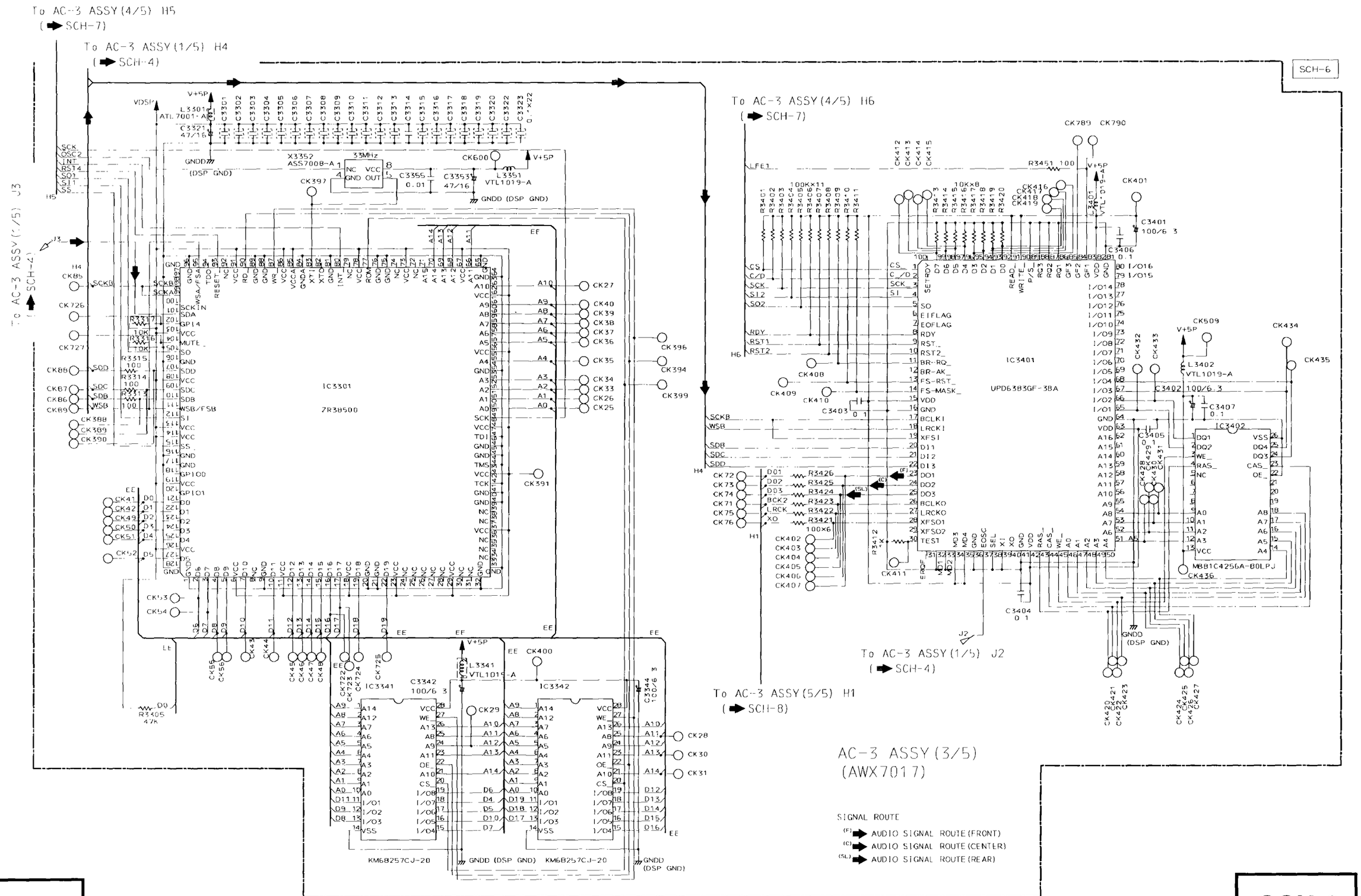
## ● AC-3 ASSY (1/5)
## DIR, A/D BLOCK



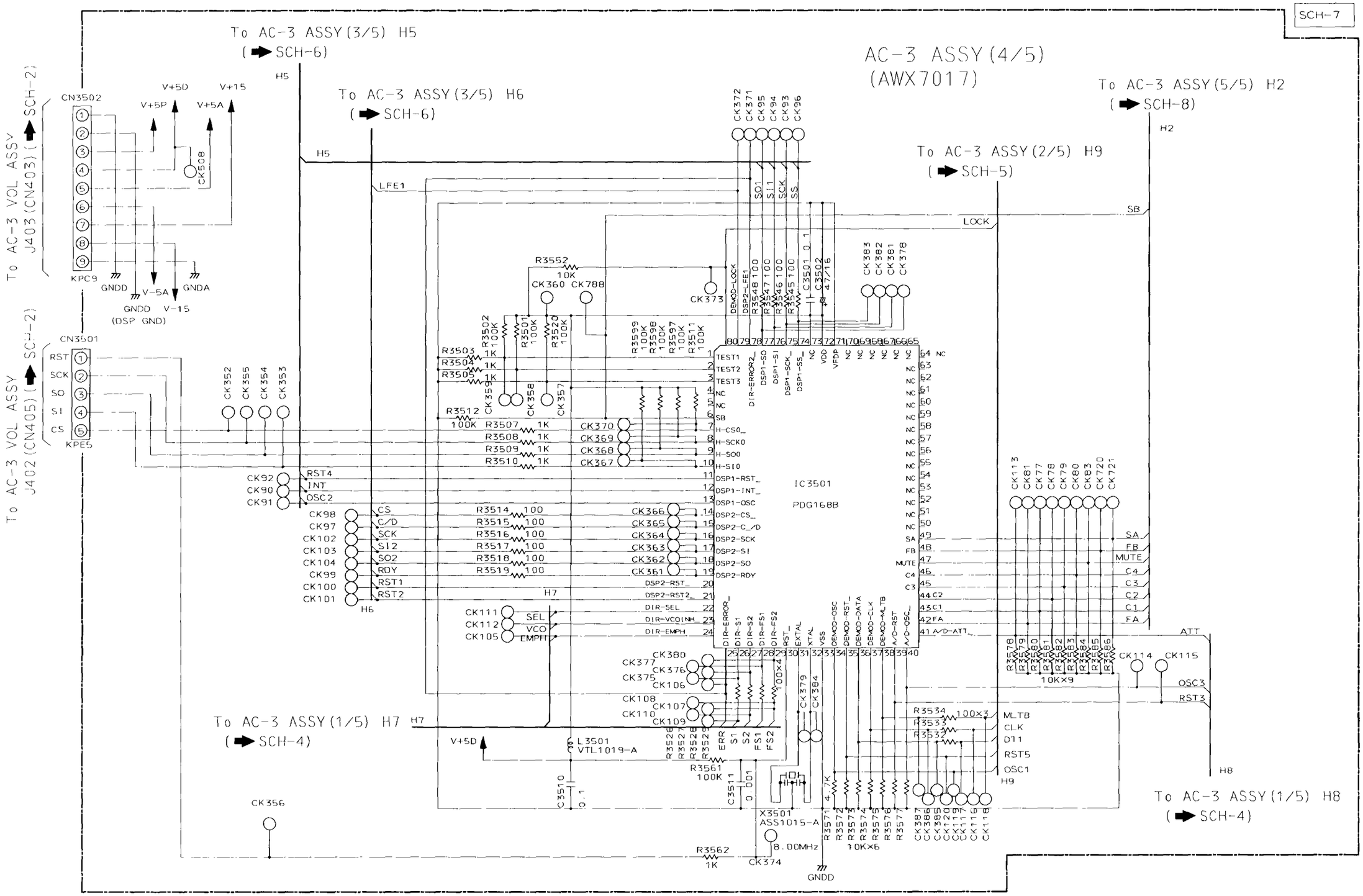
## ● AC-3 ASSY (2/5) DEMODULATOR BLOCK



## ● AC-3 ASSY (3/5)
## DSP BLOCK



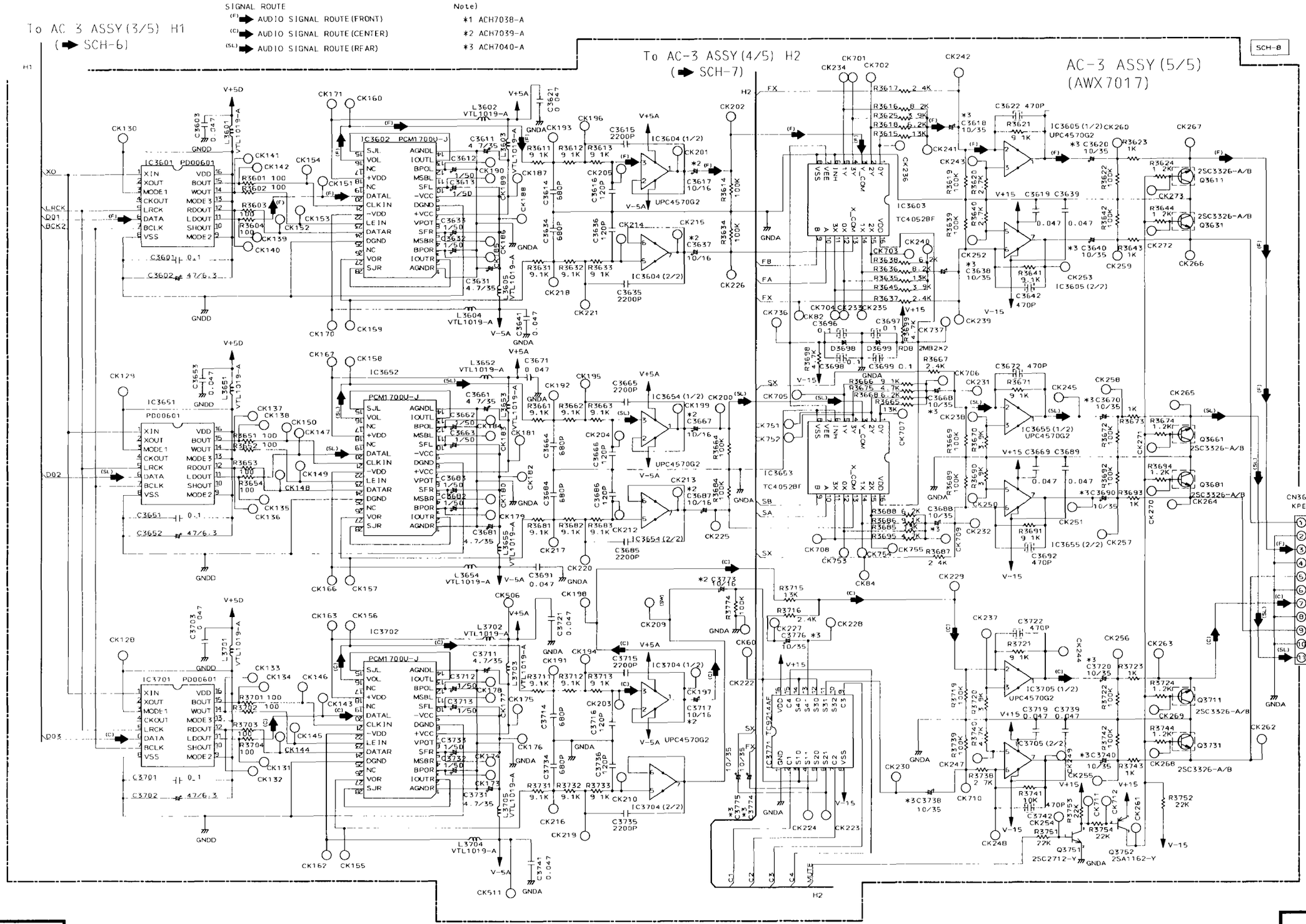
## ● AC-3 ASSY (4/5) UCOM BLOCK



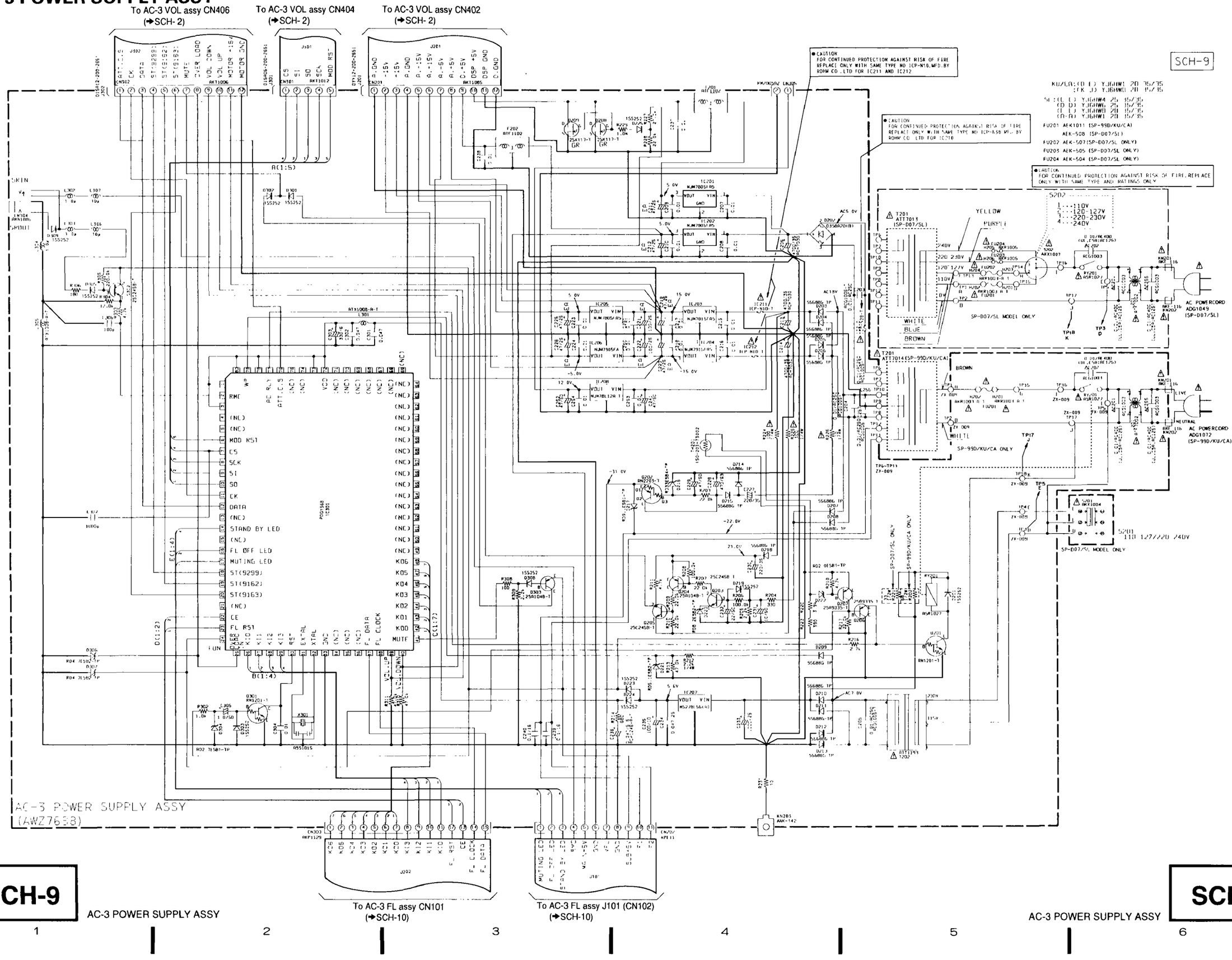



SCH-7 AC-3 ASSY (4/5)

## ● AC-3 ASSY (5/5)
## D/A BLOCK



# 3. 5 AC-3 POWER SUPPLY ASSY

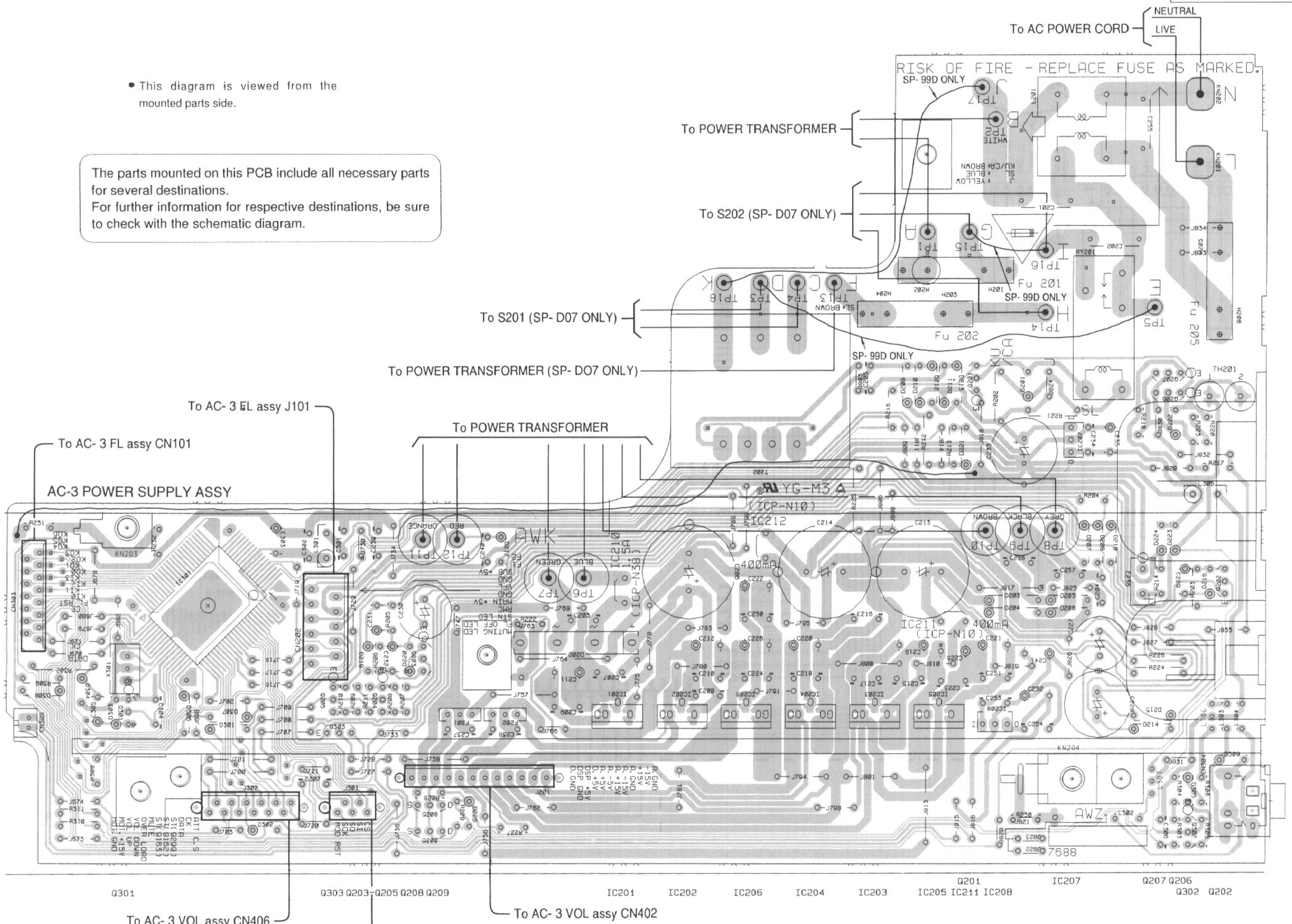

To AC-3 VOL assy CN406 (➔SCH- 2)
To AC-3 VOL assy CN404 (➔SCH- 2)
To AC-3 VOL assy CN402 (➔SCH- 2)
SCH-9
AC-3 POWER SUPPLY ASSY (AWZ7658)
To AC-3 FL assy CN101 (➔SCH-10)
To AC-3 FL assy J101 (CN102) (➔SCH-10)
SP-D07/SL MODEL ONLY
SP-99D/KU/CA ONLY
AC POWERCORD ADG1049 (SP-D07/SL)
AC POWERCORD ADG1072 (SP-99D/KU/CA)



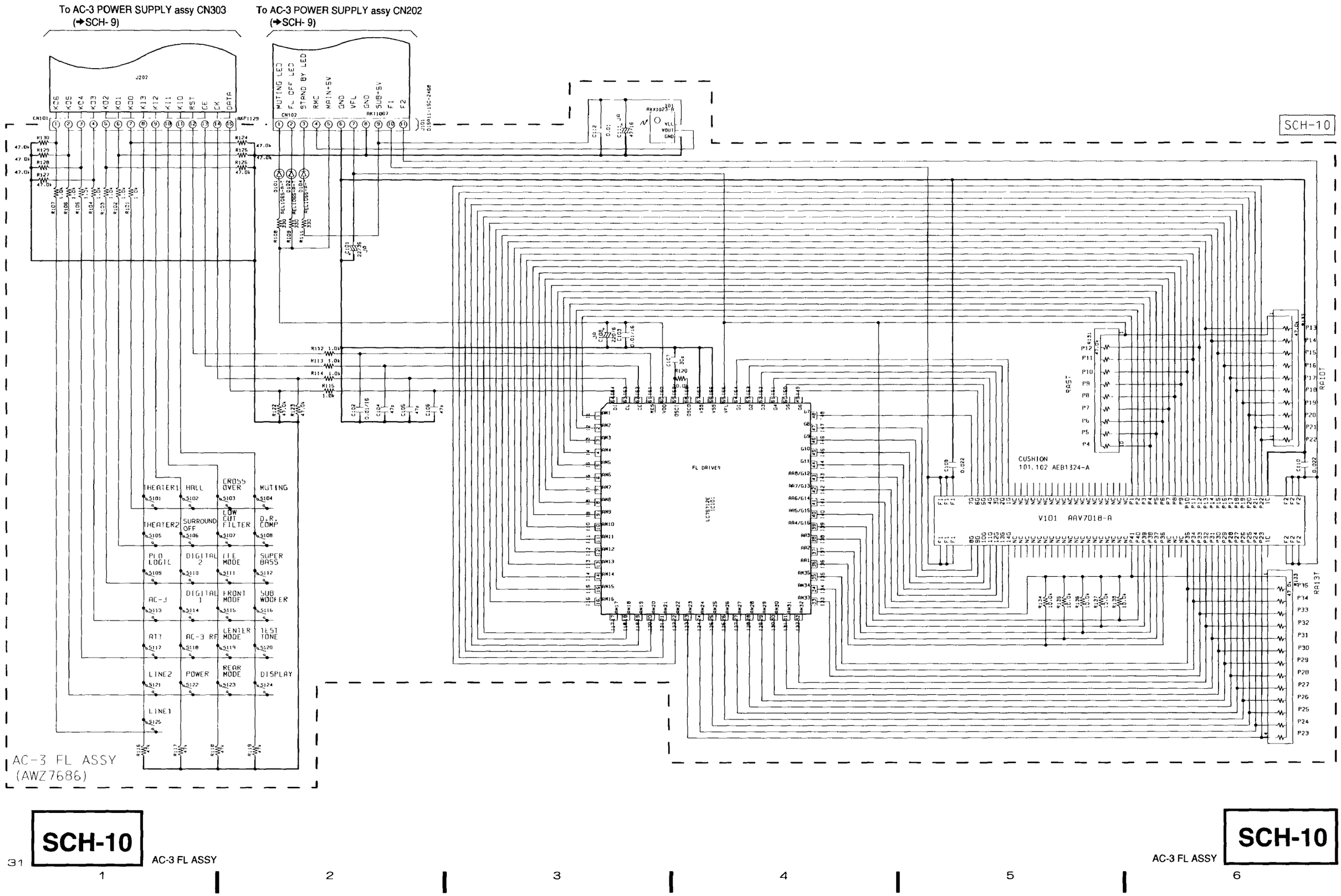
AC-3 POWER SUPPLY ASSY SCH-9

• This diagram is viewed from the mounted parts side.

The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.



## 3. 6 AC-3 FL ASSY



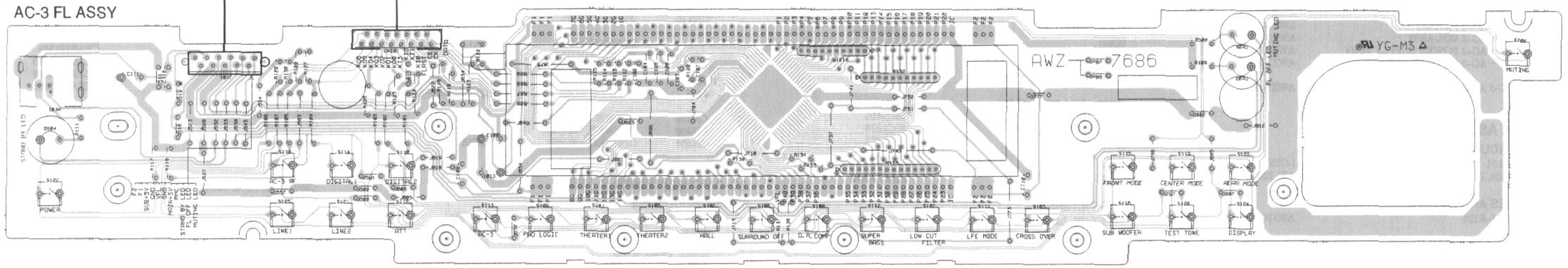



SCH-10 AC-3 FL ASSY

To AC- 3 POWER SUPPLY assy CN202

To AC- 3 POWER SUPPLY assy CN303

AC-3 FL ASSY




• This diagram is viewed from the mounted parts side.

The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

# 4. PCB PARTS LIST

*NOTES :*

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

*560Ω → 56 x 10¹ = 561 ..... RD1/8PM 5 6 1 J*
*47kΩ → 47 x 10³ = 473 ..... RD1/4PS 4 7 3 J*
*0.5Ω → 0R5 ..... RN2H 0 R 5 K*
*1Ω → 010 ..... RS1P 0 1 0 K*

*Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).*

*5.62kΩ → 562 x 10¹ = 5621 ..... RM1/4PC 5 6 2 1 F*

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **LIST OF PCB ASSEMBLIES** | | | |
| NSP | AC-3 COMPLEX ASSY | | AWK7167 |
| | ├ AC-3 FL ASSY | | AWZ7686 |
| | ├ AC-3 VOL ASSY | | AWZ7687 |
| | ├ AC-3 POWER SUPPLY ASSY | | AWZ7688 |
| | └ AC-3 SW ASSY | | AWZ7689 |
| | AC-3 ASSY | | AWX7017 |
| **AC-3 FL ASSY** | | | |
| SEMICONDUCTORS | | | |
| | IC101 | | LC75712E |
| | D101, D102, D104 | | AEL1065 |
| SWITCHES AND RELAYS | | | |
| | S101–S125 | | ASG1034 |
| CAPACITORS | | | |
| | C107 | | CCPUSL300J50 |
| | C104–C106 | | CCPUSL470J50 |
| | C101 | | CEJA220M35 |
| | C108 | | CEJA221M6 |
| | C111 | | CEJA470M16 |
| | C112 | | CKCYF103Z50 |
| | C109, C110 | | CKCYF223Z50 |
| | C103 | | CKPUYY103M16 |
| | C102 | | CKPUYY103N16 |
| RESISTORS | | | |
| | R132 | | RA10T473J |
| | R133 | | RA13T473J |
| | R131 | | RA9T473J |
| | Other Resistors | | RD1/8PM□□□J |
| OTHERS | | | |
| | V101 | FL TUBE | AAV7018 |
| | CN101 | 15P SOCKET | AKP1129 |
| | | CABLE HOLDER | AKT1007 |
| | | REMOTE RECEIVER UNIT | AXX1023 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **AC-3 VOL ASSY** | | | |
| SEMICONDUCTORS | | | |
| | IC404–IC406 | | NJM4558LD |
| | IC407 | | TA8409S |
| | IC402 | | TC9163AN |
| | IC501, IC601, IC701 | | TC9299P |
| | IC401, IC403, IC502–IC504 | | UPC4570C |
| | IC602–IC604, IC702–IC704 | | UPC4570C |
| | Q401, Q402 | | 2SC2458 |
| | Q501, Q502, Q601, Q602 | | 2SC2878 |
| | Q701, Q702 | | 2SC2878 |
| | D401, D402 | | 1SS252 |
| | D403 | | RD4.7ESB2 |
| COILS AND FILTERS | | | |
| | L403, L405–L418 | | ATX7003 |
| | L401, L402 | | LAU220J |
| CAPACITORS | | | |
| | C452 | | CCCCH101J50 |
| | C433, C444, C509, C510 | | CCCCH330J50 |
| | C517, C518, C609, C617, C618 | | CCCCH330J50 |
| | C709, C710, C717, C718 | | CCCCH330J50 |
| | C440 | | CEAS470M50 |
| | C403, C435–C437, C513, C514 | | CEEA010M50 |
| | C613, C614, C713, C714 | | CEEA010M50 |
| | C429 | | CEEA0R1M50 |
| | C411–C414, C419, C420 | | CEEA100M50 |
| | C425, C426, C434, C438, C439 | | CEEA100M50 |
| | C453, C454, C501, C502 | | CEEA100M50 |
| | C505, C506, C511, C512 | | CEEA100M50 |
| | C601, C602, C605, C606 | | CEEA100M50 |
| | C611, C612, C701, C702 | | CEEA100M50 |
| | C705, C706, C711, C712 | | CEEA100M50 |
| | C415, C416, C423, C424 | | CEEA220M50 |
| | C503, C504, C721, C722 | | CEEA220M50 |
| | C401, C402 | | CEEA2R2M50 |
| | C515, C516, C615, C616 | | CEEA3R3M50 |
| | C715, C716 | | CEEA3R3M50 |
| | C451 | | CEEA470M25 |
| | C428 | | CEEAR33M50 |
| | C523, C524, C623, C624 | | CFTXA102J50 |
| | C723, C724 | | CFTXA102J50 |
| | C610 | | CFTXA224J50 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | C427 | | CKCYB102K50 |
| | C417, C418, C421, C422 | | CKCYF103Z50 |
| | C507, C508, C607, C608 | | CKCYF103Z50 |
| | C707, C708, C719, C720 | | CKCYF103Z50 |
| | C441, C442 | | CKCYF473Z50 |
| | C405–C410 | | CKPUYB101K50 |
| | **RESISTORS** | | |
| | VR401 | | ACX7012 |
| | R513, R514, R613, R614 | | RDR1/4PM102J |
| | R713, R714 | | RDR1/4PM102J |
| | R519, R520, R619 | | RDR1/4PM122J |
| | R521, R522, R609, R610, R621 | | RDR1/4PM153J |
| | R709, R710 | | RDR1/4PM153J |
| | R505, R506, R509, R510 | | RDR1/4PM472J |
| | R605, R606, R705, R706 | | RDR1/4PM472J |
| | Other Resistors | | RD1/8PM□□□J |
| | **OTHERS** | | |
| | CN601 | 2P PIN JACK | AKB7030 |
| | CN412 | 2P PIN JACK | AKB7031 |
| | CN501, CN701 | 2P PIN JACK | AKB7032 |
| | CN602 | 2P PIN JACK | AKB7033 |
| | CN410 | PIN JACK (4P) | AKB7034 |
| | | CABLE HOLDER | AKT1012 |
| | | CABLE HOLDER | AKT1023 |
| | | CABLE HOLDER (9P) | AKT1082 |
| | J402 | JUMPER WIRE | D15A05–075–2468 |
| | J406 | JUMPER WIRE | D15A09–075–2468 |
| | CN402 | CONNECTOR (12P) | KPC12 |
| | CN406 | CONNECTOR (12P) | KPE12 |
| | CN404 | CONNECTOR (5P) | KPE5 |

## AC–3 POWER SUPPLY ASSY

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| ⚠ | IC211, IC212 | | ICP–N10 |
| ⚠ | IC210 | | ICP–N38 |
| | IC207 | | M5278L56 (A) |
| | IC201, IC202, IC205 | | NJM7805FAS |
| | IC203 | | NJM7815FAS |
| | IC208 | | NJM78L12A |
| | IC206 | | NJM7905FA |
| | IC204 | | NJM7915FAS |
| | IC301 | | PDG156B |
| | Q204, Q303 | | 2SA1048 |
| | Q206, Q207 | | 2SA933S |
| | Q203, Q205, Q302 | | 2SC2458 |
| | Q208, Q209 | | 2SK117 |
| | Q201, Q301 | | RN1201 |
| | Q202 | | RN2203 |
| | D201, D219, D223–D225 | | 1SS252 |
| | D301–D303, D305, D308, D309 | | 1SS252 |
| | D202 | | D3SBA20 (B) |
| | D222 | | RD2.0ESB1 |
| | D304 | | RD2.7ESB1 |
| | D216 | | RD33ESB4 |
| | D306, D307 | | RD4.7ESB2 |
| | D221 | | RD5.1ESB2 |
| | D220 | | RD8.2ESB2 |
| | D217 | | RD9.1ESB1 |
| | D203–D215, D218 | | S5688G |
| | TH201 | | 150–203–73002 |
| | **COILS AND FILTERS** | | |
| | F201, F202 | | ATF1102 |
| ⚠ | L201 | | ATF7002 |
| | L301, L305 | | ATX1008 |
| | L302–L304 | | LAU010J |
| | L306, L307 | | LAU100J |
| | **TRANSFORMERS** | | |
| ⚠ | T202 | | ATT1193 |
| | **SWITCHES AND RELAYS** | | |
| | RY201 | | ASR1027 |
| | **CAPACITORS** | | |
| ⚠ | C201, C202, C255 (0.01 μ F/400V) | | ACG1003 |
| | C203–C205, C256, C257 (0.01 μ F/150V) | | ACG1005 |
| | C236 (6.8 μ F/25V) | | ACH1246 |
| | C206, C213, C214 (4700 μ F/35V) | | ACH7030 |
| | C306 | | CCCCH101J50 |
| | C305 | | CEAS010M50 |
| | C231 | | CEAS100M50 |
| | C235 | | CEAS101M10 |
| | C233 | | CEAS102M25 |
| | C232 | | CEAS220M50 |
| | C227, C230 | | CEAS221M35 |
| | C303 | | CEAS331M6 |
| | C229, C241, C252 | | CEAS470M50 |
| | C228 | | CEAS471M63 |
| | C221, C222 | | CEEA101M25 |
| | C211, C212, C219, C220 | | CEEA470M25 |
| | C225, C226 | | CEEA470M25 |
| | C307 | | CKCYF102Z50 |
| | C207–C210, C215–C218 | | CKCYF103Z50 |
| | C223, C224, C237, C238 | | CKCYF103Z50 |
| | C250, C251, C253, C254, C304 | | CKCYF103Z50 |
| | C301, C302 | | CKCYF473Z50 |
| | C239, C240 | | CKCYX104M16 |
| | C234 | | CKCYX473M25 |
| | **RESISTORS** | | |
| | R221 | | RD1/2PM330J |
| | R202 | | RD1/2PM680J |
| | R212 | | RD1/4PM222J |
| ⚠ | R226 | | RFA1/4PS100J |
| ⚠ | R224, R225 | | RFA1/4PS101J |
| | Other Resistors | | RD1/8PM□□□J |
| | **OTHERS** | | |
| | | SCREW | ABA–298 |
| | CN304 | JACK | AKN1006 |
| | CN303 | 15P SOCKET | AKP1129 |
| | H201–H204 | FUSE CLIP | AKR1003 |
| | | CABLE HOLDER | AKT1012 |
| | | CABLE HOLDER (12P) | AKT1085 |
| | | HEAT SINK | ANH7022 |
| | X301 | CERAMIC RESONATOR (8.00 MHz) | ASS1015 |
| | | SCREW | BBZ30P080FMC |
| | CN202 | CONNECTOR (11P) | KPE11 |

## AC–3 SW ASSY

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| | IC801 | | TC9162AN |
| | IC802, IC804, IC805 | | UPC4570C |
| | Q803 | | 2SA1048 |
| | Q801, Q802, Q804, Q805 | | 2SC2878 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **COILS AND FILTERS** | | | |
| | L802–L807 | | ATX7003 |
| **CAPACITORS** | | | |
| | C821 | | CCCCH101J50 |
| | C809, C810, C813, C815, C816 | | CCCCH330J50 |
| | C805–C808 | | CEEA100M50 |
| | C803, C804, C819, C820 | | CEEA220M50 |
| | C801, C802, C817, C818 | | CKCYF103Z50 |
| **RESISTORS** | | | |
| | R801, R802, R821–R824 | | RDR1/4PM222J |
| | R830, R831, R839, R840 | | RDR1/4PM222J |
| | R845, R846 | | RDR1/4PM222J |
| | R815–R817, R849 | | RDR1/4PM224J |
| | R819, R820, R829, R837, R838 | | RDR1/4PM332J |
| | R835, R836 | | RDR1/4PM392J |
| | R847, R848 | | RDR1/4PM681J |
| | Other Resistors | | RD1/8PM□□□J |
| **OTHERS** | | | |
| | | CABLE HOLDER | AKT1007 |
| | CN802 | CONNECTOR (12P) | KPE12 |
| | CN803 | CONNECTOR (7P) | KPE7 |
| | CN804 | CONNECTOR (9P) | KPE9 |

## AC-3 ASSY

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC3241 | | AK5340-VS |
| | IC3341, IC3342 | | KM68257CJ-20 |
| | IC3053 | | MAX903CSA |
| | IC3402 | | MB81C4256A-80LPJ |
| | IC3051 | | MC14577CF |
| | IC3004, IC3052 | | NJM4558ED |
| | IC3602, IC3652, IC3702 | | PCM1700U-J |
| | IC3601, IC3651, IC3701 | | PD00601 |
| | IC3001 | | PD4606A |
| | IC3501 | | PDG168B |
| | IC3002 | | SRM20259LTM10 |
| | IC3603, IC3653 | | TC4052BF |
| | IC3102 | | TC74HC157AF |
| | IC3054, IC3103, IC3251 | | TC74HCU04AF |
| | IC3242 | | TC7S04F |
| | IC3031, IC3104 | | TC7WU04F |
| | IC3771 | | TC9214AF |
| | IC3101 | | TC9245F |
| | IC3201, IC3221, IC3604, IC3605 | | UPC4570G2 |
| | IC3654, IC3655, IC3704, IC3705 | | UPC4570G2 |
| | IC3401 | | UPD6383GF-3BA |
| | IC3301 | | ZR38500 |
| | Q3053 | | 2SA1037K |
| | Q3261, Q3752 | | 2SA1162 |
| | Q3051, Q3052 | | 2SC2412K |
| | Q3751 | | 2SC2712 |
| | Q3201, Q3221, Q3611, Q3631, Q3661 | | 2SC3326 |
| | Q3681, Q3711, Q3731 | | 2SC3326 |
| | Q3001, Q3031 | | DTA144EK |
| | Q3251 | | DTC114EK |
| | D3201, D3202, D3221, D3222 | | 1SS226 |
| | D3001 | | KV1851 |
| | D3698, D3699 | | RD8.2MB2 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **COILS AND FILTERS** | | | |
| | F3051 (2.88MHz) | | ATF7001 |
| | L3051 (68 $\mu$H) | | ATH7001 |
| | L3301 | | ATL7001 |
| | L3121, L3122 | | ATX1026 |
| | L3001–L3004, L3031, L3101–L3104 | | VTL1019 |
| | L3151, L3241–L3243, L3251, L3341 | | VTL1019 |
| | L3351, L3401, L3402, L3501 | | VTL1019 |
| | L3601–L3605, L3651–L3655 | | VTL1019 |
| | L3701–L3705 | | VTL1019 |
| **CAPACITORS** | | | |
| | C3202, C3207, C3208, C3222 (22 $\mu$F/16V) | | ACH7038 |
| | C3227, C3228 (22 $\mu$F/16V) | | ACH7038 |
| | C3206, C3226, C3617, C3637, C3667 (10 $\mu$F/16V) | | ACH7039 |
| | C3687, C3717, C3773 (10 $\mu$F/16V) | | ACH7039 |
| | C3618, C3620, C3638, C3640, C3668 (10 $\mu$F/35V) | | ACH7040 |
| | C3670, C3688, C3690, C3720, C3738 (10 $\mu$F/35V) | | ACH7040 |
| | C3740, C3774–C3776 (10 $\mu$F/35V) | | ACH7040 |
| | C3251, C3252 | | CCSQCH100D50 |
| | C3123, C3124, C3591 | | CCSQCH101J50 |
| | C3616, C3636, C3666, C3686, C3716 | | CCSQCH121J50 |
| | C3736 | | CCSQCH121J50 |
| | C3201, C3203, C3221, C3223 | | CCSQCH220J50 |
| | C3614, C3634, C3664, C3684, C3714 | | CCSQCH681J50 |
| | C3734 | | CCSQCH681J50 |
| | C3055 | | CCSQCH750J50 |
| | C3391, C3392, C3491, C3492, C3921 | | CCSRCH101J50 |
| | C3114 | | CCSRCH121J50 |
| | C3015 | | CCSRCH220J50 |
| | C3111 | | CCSRCH221J50 |
| | C3622, C3642, C3672, C3692, C3722 | | CCSRCH471J50 |
| | C3742 | | CCSRCH471J50 |
| | C3299 | | CEAS102M10 |
| | C3102, C3612, C3613, C3632, C3633 | | CEV010M50 |
| | C3662, C3663, C3682, C3683 | | CEV010M50 |
| | C3712, C3713, C3732, C3733 | | CEV010M50 |
| | C3006, C3024, C3033, C3241, C3342 | | CEV101M6 |
| | C3344, C3401, C3402 | | CEV101M6 |
| | C3014, C3059, C3061, C3105, C3113 | | CEV470M16 |
| | C3121, C3321, C3353, C3502 | | CEV470M16 |
| | C3019, C3602, C3652, C3702 | | CEV470M6 |
| | C3611, C3631, C3661, C3681, C3711 | | CEV4R7M35 |
| | C3731 | | CEV4R7M35 |
| | C3025 | | CEVNP470M10 |
| | C3066 | | CEVNPR47M50 |
| | C3063 | | CEVR47M50 |
| | C3511 | | CKSQYB102K50 |
| | C3001–C3005, C3028, C3056, C3057 | | CKSQYB103K50 |
| | C3101, C3104, C3106, C3355 | | CKSQYB103K50 |
| | C3013, C3020–C3023, C3026, C3031 | | CKSQYB104K25 |
| | C3054, C3058, C3060, C3115, C3151 | | CKSQYB104K25 |
| | C3205, C3210, C3211, C3225 | | CKSQYB104K25 |
| | C3230, C3231, C3248, C3253, C3314 | | CKSQYB104K25 |
| | C3403–C3407, C3501, C3510, C3601 | | CKSQYB104K25 |
| | C3651, C3701 | | CKSQYB104K25 |
| | C3209, C3229 | | CKSQYB152K50 |
| | C3615, C3635, C3665, C3685, C3715 | | CKSQYB222K50 |
| | C3735 | | CKSQYB222K50 |
| | C3051 | | CKSQYB223K50 |
| | C3007, C3027, C3032, C3152, C3254 | | CKSQYB473K50 |
| | C3603, C3619, C3621, C3639, C3641 | | CKSQYB473K50 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | C3653, C3669, C3671, C3689, C3691 | | CKSQYB473K50 |
| | C3703, C3719, C3721, C3739, C3741 | | CKSQYB473K50 |
| | C3016, C3018, C3247, C3411 | | CKSRYB103K50 |
| | C3112 | | CKSRYB473K16 |
| | C3053, C3064, C3103, C3116, C3122 | | CKSRYF104Z25 |
| | C3242, C3243, C3301–C3313 | | CKSRYF104Z25 |
| | C3315–C3320, C3322, C3323 | | CKSRYF104Z25 |
| | C3696–C3699 | | CKSRYF104Z25 |
| RESISTORS | | | |
| | R3030, R3151, R3241–R3243 | | RS1/16S101J |
| | R3313–R3315, R3514–R3519 | | RS1/16S101J |
| | R3068, R3507–R3510 | | RS1/16S102J |
| | R3054, R3066, R3069, R3316, R3317 | | RS1/16S103J |
| | R3413–R3420, R3552, R3572–R3586 | | RS1/16S103J |
| | R3112, R3401–R3411, R3501, R3502 | | RS1/16S104J |
| | R3511, R3512, R3520, R3597–R3599 | | RS1/16S104J |
| | R3111 | | RS1/16S122J |
| | R3115 | | RS1/16S203J |
| | R3753, R3754 | | RS1/16S223J |
| | R3077 | | RS1/16S224J |
| | R3738 | | RS1/16S272J |
| | R3059, R3571 | | RS1/16S472J |
| | R3026, R3027 | | RS1/16S473J |
| | R3113, R3114, R3116 | | RS1/16S751J |
| | Other Resistors | | RS1/10S□□□J |

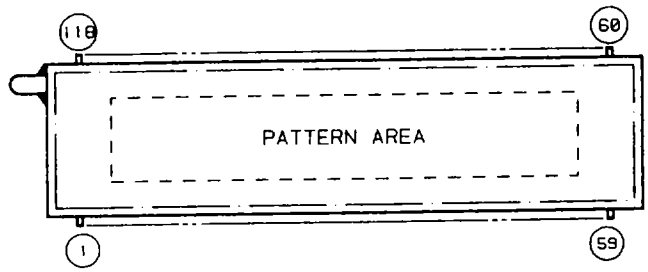
| Mark | No. | Description | Parts No. |
|---|---|---|---|
| OTHERS | | | |
| | | PIN JACK (1P) | AKB7035 |
| | CN3502 | CONNECTOR (9P) | KPC9 |
| | CN3601 | CONNECTOR (11P) | KPE11 |
| | CN3201 | CONNECTOR (3P) | KPE3 |
| | CN3501 | CONNECTOR (5P) | KPE5 |
| | X3501 (8.00MHz) | | ASS1015 |
| | X3251 (18.432MHz) | | ASS1035 |
| | X3003 (46.08MHz) | | ASS7007 |
| | X3352 (33.00MHz) | | ASS7008 |
| | X3001 (18.432MHz) | | ASS7009 |

# 5. FL INFORMATION

## ■ AAV7018 (V101: AC-3 FL ASSY)

### ● FL TUBE

● Pin Assignment




● Pin Connection

| PIN NO. | 118 | 117 | 116 | 115 | 114 | 113 | 112 | 111 | 110 | 109 |
|---|---|---|---|---|---|---|---|---|---|---|
| CONNECTION | F1 | F1 | F1 | NP | NP | 7G | 6G | 5G | 4G | 3G |

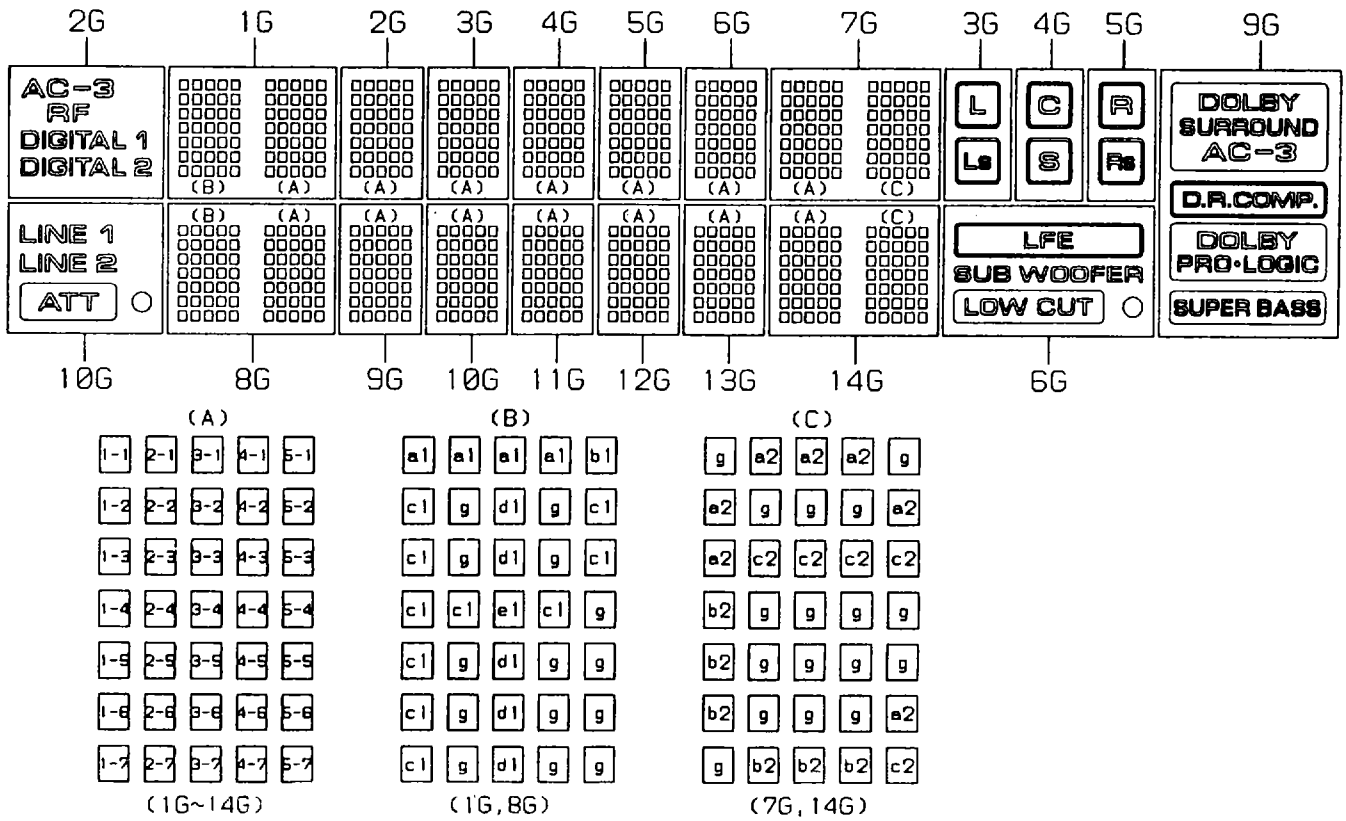
| PIN NO. | 108 | 107 | 106 | 105 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 | 96 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | 88 | 87 | 86 | 85 | 84 | 83 | 82 | 81 | 80 | 79 | 78 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 | 69 | 68 | 67 | 66 | 65 | 64 | 63 | 62 | 61 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONNECTION | 2G | 1G | IC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | P11 | P12 | P13 | P14 | P15 | P16 | P17 | P18 | P19 | P20 | P21 | P22 | P23 | P24 | P25 | P26 | P27 | P28 | P29 | P30 | P31 | P32 | NC | NP | F2 | F2 | F2 |

| PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONNECTION | F1 | F1 | F1 | NP | NP | 8G | 9G | 10G | 11G | 12G | 13G | 14G | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | P44 | P43 | P42 | P41 | P40 | P39 | P38 |

| PIN NO. | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 |
|---|---|---|---|---|---|---|---|---|---|
| CONNECTION | P25 | P24 | P23 | IC | NP | NP | F2 | F2 | F2 |

NOTE
1) F1,F2 --- Filament
2) NP ------ No pin
3) NC ------ No connection
4) DL ------ Datum Line
5) 1G~14G -- Grid
6) IC ------ Internal connection

● Grid Assignment




● Anode Conecction

| | 1G~14G |
|---|---|
| P1 | 1-1 |
| P2 | 2-1 |
| P3 | 3-1 |
| P4 | 4-1 |
| P5 | 5-1 |
| P 6 | 1-2 |
| P 7 | 2-2 |
| P 8 | 3-2 |
| P 9 | 4-2 |
| P10 | 5-2 |
| P11 | 1-3 |
| P12 | 2-3 |
| P13 | 3-3 |
| P14 | 4-3 |
| P15 | 5-3 |

| | 1G~14G |
|---|---|
| P16 | 1-4 |
| P17 | 2-4 |
| P18 | 3-4 |
| P19 | 4-4 |
| P20 | 5-4 |
| P21 | 1-5 |
| P22 | 2-5 |
| P23 | 3-5 |
| P24 | 4-5 |
| P25 | 5-5 |
| P26 | 1-6 |
| P27 | 2-6 |
| P28 | 3-6 |
| P29 | 4-6 |
| P30 | 5-6 |

| | 1G | 2G | 3G | 4G | 5G | 6G | 7G | 8G | 9G | 10G | 11G ~13G | 14G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P31 | 1-7 | 1-7 | 1-7 | 1-7 | 1-7 | 1-7 | 1-7 | 1-7 | 1-7 | 1-7 | 1-7 | 1-7 |
| P32 | 2-7 | 2-7 | 2-7 | 2-7 | 2-7 | 2-7 | 2-7 | 2-7 | 2-7 | 2-7 | 2-7 | 2-7 |
| P33 | 3-7 | 3-7 | 3-7 | 3-7 | 3-7 | 3-7 | 3-7 | 3-7 | 3-7 | 3-7 | 3-7 | 3-7 |
| P34 | 4-7 | 4-7 | 4-7 | 4-7 | 4-7 | 4-7 | 4-7 | 4-7 | 4-7 | 4-7 | 4-7 | 4-7 |
| P35 | 5-7 | 5-7 | 5-7 | 5-7 | 5-7 | 5-7 | 5-7 | 5-7 | 5-7 | 5-7 | 5-7 | 5-7 |
| P36 | a1 | AC-3 RF | (L) | (C) | (R) | LFE | a2 | a1 | DOLBY SURROUND AC-3 | LINE 1 | - | a2 |
| P37 | b1 | DIGITAL 1 | L | C | R | (LFE) | b2 | b1 | D.R.COMP. | LINE 2 | - | b2 |
| P38 | c1 | DIGITAL 2 | Ls | S | Rs | SUB WOOFER | c2 | c1 | DOLBY PRO·LOGIC | ATT | - | c2 |
| P39 | d1 | - | (Ls) | (S) | (Rs) | LOW CUT | - | d1 | SUPER BASS | ○ | - | - |
| P40 | e1 | - | - | - | - | ○ | - | e1 | - | - | - | - |
| P41 | g | - | - | - | - | - | g | g | - | - | - | g |

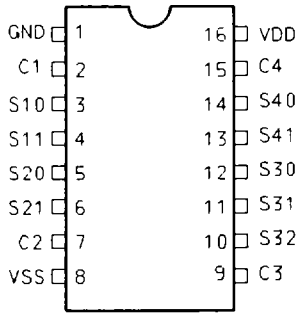
# 6. IC INFORMATION

● *The information shown in the list is basic information andmay not correspond exactly to that shown in the schematic diagram.*

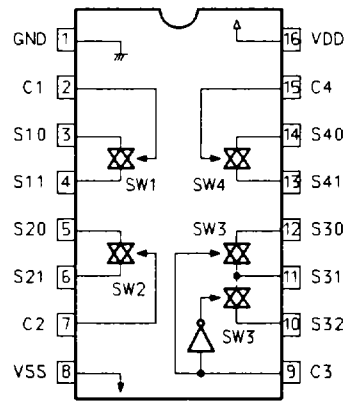
## ■ TC9214AF (IC3771: AC-3 ASSY)

### ● Analog Switch

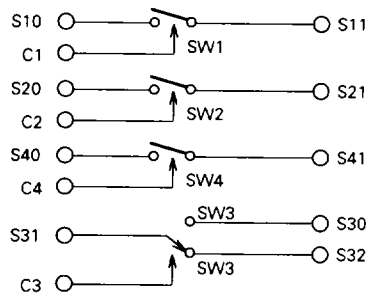
● Pin Assignment (Top View)




● Block Diagram




● Pin Function

| No. | Symbol | Pin Name | Description |
|---|---|---|---|
| 1 | GND | Ground | 2 power supply operation: +B → VDD<br>0 V → GND<br>−B → VSS<br>1 power supply operation: +B → VDD<br>0 V → GND, VSS |
| 8 | Vss | Power supply (−) | |
| 16 | VDD | Power supply (+) | |
| 2 | C1 | SW1 control | Switch Connection<br>  <br><br>Truth Table |
| 3 | S10 | SW1 Input/output | |
| 4 | S11 | | |
| 5 | S20 | SW2 Input/output | |
| 6 | S21 | | |
| 7 | C2 | SW2 control | |
| 9 | C3 | SW3 control | |
| 10 | S32 | SW3 Input/output | |
| 11 | S31 | | |
| 12 | S30 | | |
| 13 | S41 | SW4 Input/output | |
| 14 | S40 | | |
| 15 | C4 | SW4 control | |

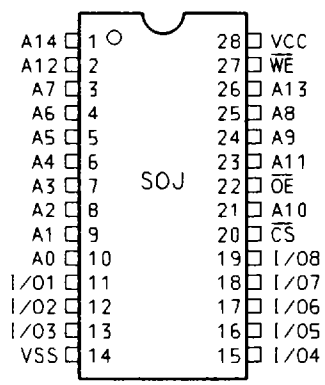
| C1, C2, C3 | SW1, SW2, SW3 |
|---|---|
| H | ON |
| L | OFF |

| C3 | S30-S31 | S31-S32 |
|---|---|---|
| H | ON | OFF |
| L | OFF | ON |

## ■ KM68257CJ−20 (IC3341, IC3342: AC-3 ASSY)

### ● S-RAM

● Pin Assignment (Top View)




● Pin Function

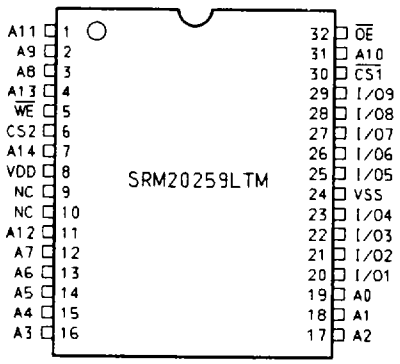
| No. | Pin Name | Description |
|---|---|---|
| 1 | A14 | Address Inputs |
| 2 | A12 | |
| 3 \| 10 | A7 \| A0 | |
| 11 \| 13 | I/O1 \| I/O3 | Data Inputs/Outputs |
| 14 | Vss | Ground |
| 15 \| 19 | I/O4 \| I/O8 | Data Inputs/Outputs |

| No. | Pin Name | Description |
|---|---|---|
| 20 | $\overline{CS}$ | Chip Select |
| 21 | A10 | Address Input |
| 22 | $\overline{OE}$ | Output Enable |
| 23 | A11 | Address Inputs |
| 24 | A9 | |
| 25 | A8 | |
| 26 | A13 | |
| 27 | $\overline{WE}$ | Write Enable |
| 28 | Vcc | Power (+5V) |

## ■ SRM20259LTM10 (IC3002: AC-3 ASSY)

### ● S-RAM

● Pin Assignment (Top View)




● Pin Function

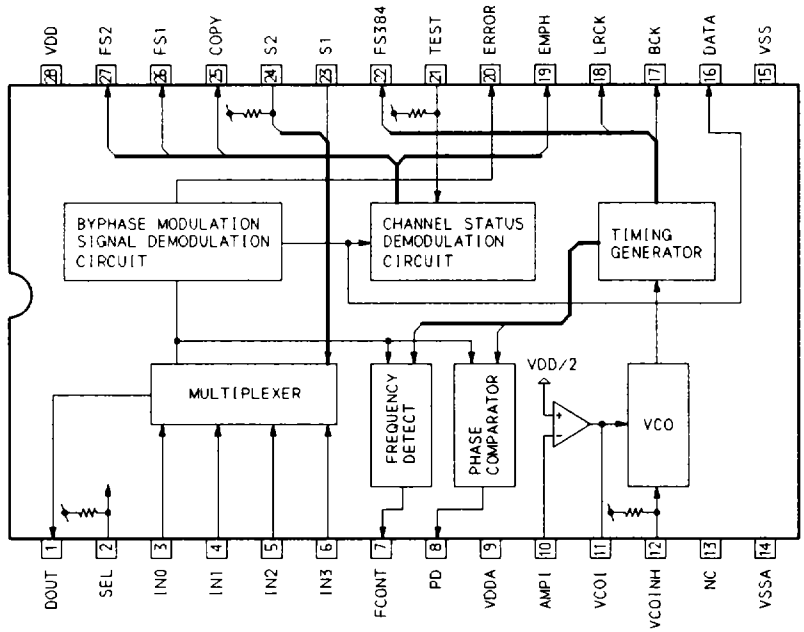
| No. | Pin Name | Description |
|---|---|---|
| 1 | A11 | Address Inputs |
| 2 | A9 | |
| 3 | A8 | |
| 4 | A13 | |
| 5 | $\overline{WE}$ | Write Enable |
| 6 | CS2 | Chip Select 2 |
| 7 | A14 | Address Input |
| 8 | VDD | Power (+5V) |
| 9 \| 10 | NC | Not Connect |
| 11 | A12 | Address Inputs |
| 12 \| 19 | A7 \| A0 | |

| No. | Pin Name | Description |
|---|---|---|
| 20 \| 23 | I/O1 \| I/O4 | Data Inputs/Outputs |
| 24 | Vss | Power (0V) |
| 25 \| 29 | I/O5 \| I/O9 | Data Inputs/Outputs |
| 30 | $\overline{CS1}$ | Chip Select 1 |
| 31 | A10 | Address Input |
| 32 | $\overline{OE}$ | Output Enable |

## ■ TC9245F (IC3101: AC-3 ASSY)

### ● Digital Audio Interface Receiver

● Block Diagram




● Pin Function

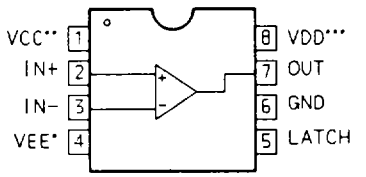
| No. | Symbol | Description | | | |
|---|---|---|---|---|---|
| | | I/O | Parallel Mode | I/O | Serial Mode |
| 1 | DOUT | O | IN0 to IN2 selection output terminal. Fixed "L" output at the time of IN3 selection | | |
| 2 | SEL | I | Input terminal for microcomputer interface mode switching.<br>Correspondence to parallel mode when "H" or open and to serial mode when "L". | | |
| 3 | IN0 | I | Digital audio data input terminal. | | |
| 4 | IN1 | | | | |
| 5 | IN2 | | | | |
| 6 | IN3 | | | | |
| 7 | FCONT | O | PLL mislock detection signal output terminal. | | |
| 8 | PD | O | Phase comparator phase error signal output terminal. | | |
| 9 | VDDA | – | Analog power supply voltage terminal. | | |
| 10 | AMPI | I | Operation amplifier input terminal for LPF. | | |
| 11 | VCOI | O | Operation amplifier output terminal. (VCO oscillation control voltage output) | | |
| 12 | $\overline{\text{VCOINH}}$ | I | Input terminal for VCO oscillation stop control. | | |
| 13 | NC | – | Not connected terminal. | | |
| 14 | VSSA | – | Analog ground terminal. | | |
| 15 | VSS | – | Digital ground terminal. | | |

| No. | Symbol | Description | | | |
|---|---|---|---|---|---|
| | | I/O | Parallel Mode | I/O | Serial Mode |
| 16 | DATA | O | Digital audio data output terminal. | | |
| 17 | BCK | O | Bit clock output terminal. (32 fs) | | |
| 18 | LRCK | O | LR clock output terminal.<br>L/R channel polarity fixed. | O | LR clock output terminal.<br>L/R channel polarity variable. |
| 19 | EMPH | O | Emphasis output terminal. Emphasis with "H". | | |
| 20 | $\overline{\text{ERROR}}$ | O | Error detection flag output terminal. Error detection with "L. | | |
| 21 | $\overline{\text{TEST}}$ | I | Test input terminal. | | |
| 22 | FS384 | O | 384 fs clock output terminal. | | |
| 23 | S1 | I | Input selection terminal. | O | 192 fs or 128 fs clock output terminal. |
| 24 | S2 | I | | I | Microcomputer data I/O mode switching terminal. |
| 25 | COPY | O | Copy prohibition flag output terminal. Copy prohibition with "L". | I/O | Microcomputer data I/O terminal. |
| 26 | FS1 | O | Sampling frequency bit decode output terminal. | I | Microcomputer data latch pulse input terminal. |
| 27 | FS2 | O | | I | Microcomputer data transfer clock input terminal. |
| 28 | VDD | – | Digital power supply voltage terminal. | | |

## ■ MAX903CSA (IC3053: AC-3 ASSY)

### ● Comparator

#### ● Block Diagram




* ANALOG V- AND SUBSTRATE
** ANALOG V+
*** DIGITAL V+

#### ● Pin Function

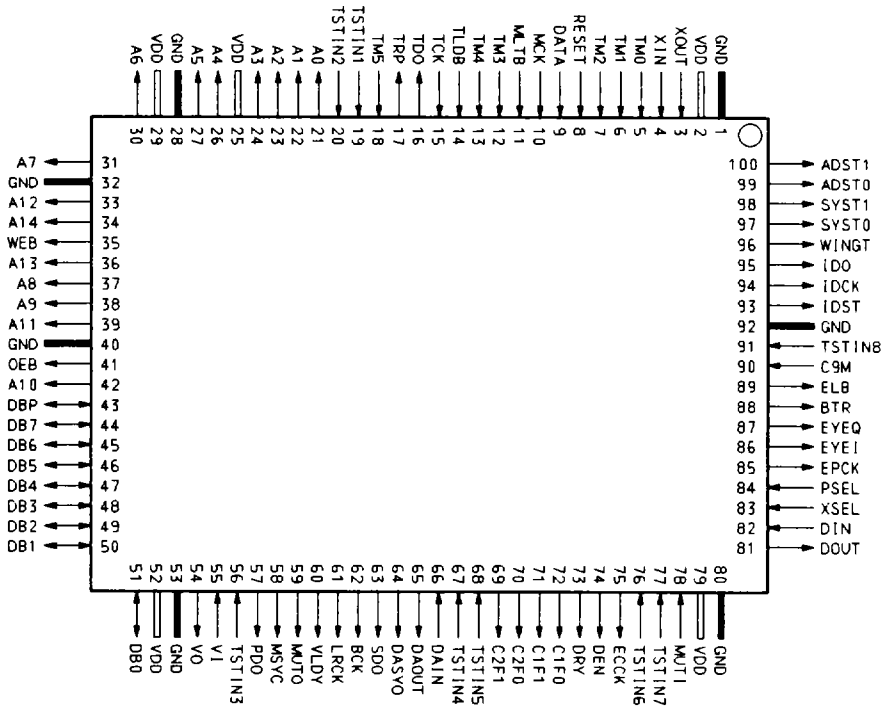
| No. | Pin Name | Description |
|---|---|---|
| 1 | Vcc | Analog Power Supply (+) |
| 2 | IN+ | Input (+) |
| 3 | IN− | Input (−) |
| 4 | VEE | Analog Power Supply (−) (Substrate) |

| No. | Pin Name | Description |
|---|---|---|
| 5 | LATCH | Latch Input |
| 6 | GND | Ground |
| 7 | OUT | Output |
| 8 | VDD | Digital Power Supply (+) |

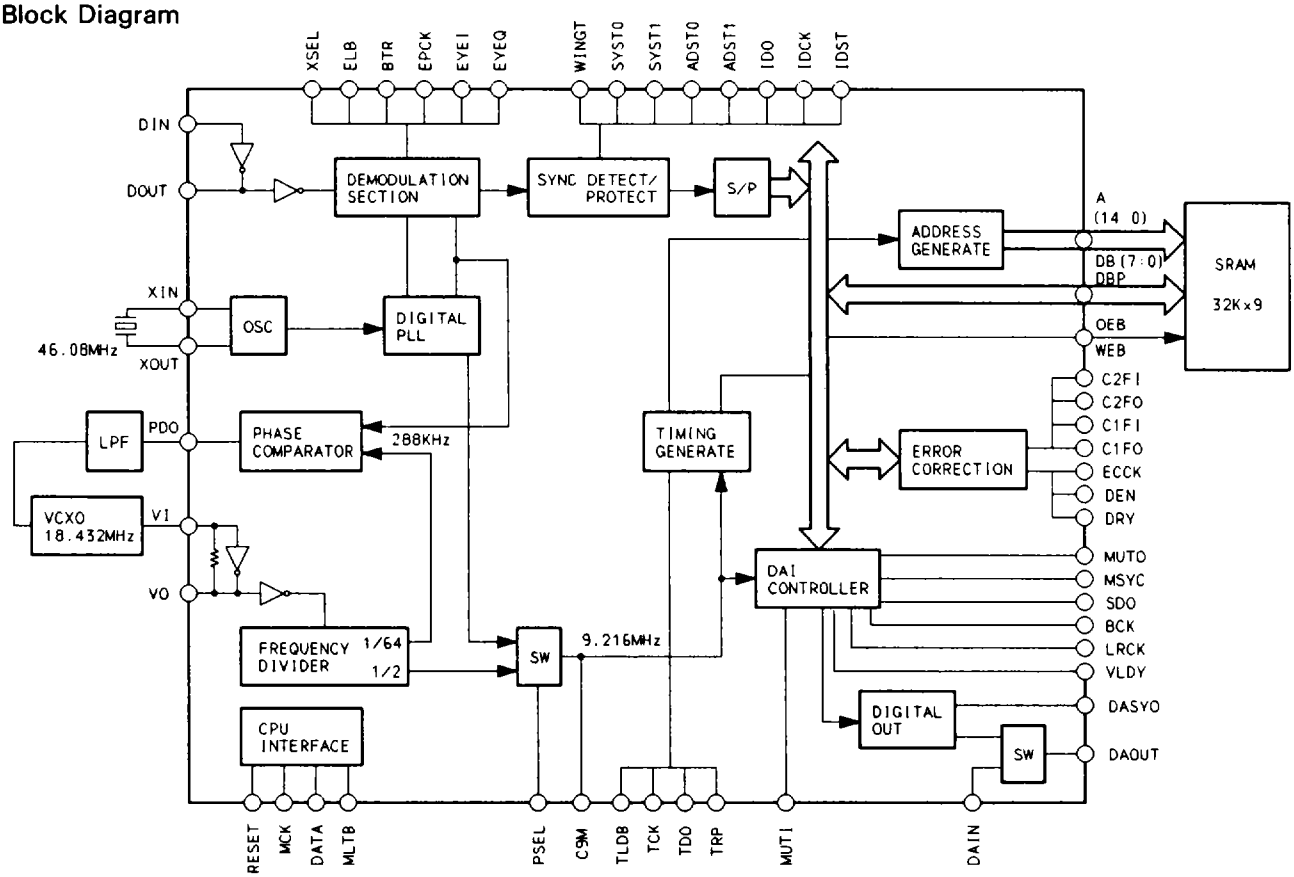
## PD4606A (IC3001: AC-3 ASSY)

### AC-3 RF Demodulator

- Pin Assignment (Top View)




- Block Diagram



● Pin Function

| No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | GND | – | GND (0 V) |
| 2 | VDD | – | Power supply (+5 V) |
| 3 | XOUT | O | Crystal oscillation circuit output |
| 4 | XIN | I | Crystal oscillation circuit input |
| 5 | TM0 | I | For IC test mode setting, normally not connected. |
| 6 | TM1 | | |
| 7 | TM2 | | |
| 8 | RESET | I | System reset, reset with "L". Becomes "L" once at the time of power ON. |
| 9 | DATA | I | Serial data input from the CPU (LSB first) |
| 10 | MCK | I | CPU serial input clock. The data are latched at the rising edge of the clock. |
| 11 | MLTB | I | CPU input latch. The serial data from the CPU (8 bit) are latched to the register. |
| 12 | TM3 | I | For IC test mode setting, normally not connected. |
| 13 | TM4 | | |
| 14 | TLDB | I | Tag code load signal. With "L", the tag code is loaded to the 16 bit shift register. |
| 15 | TCK | I | Clock for tag code output. Data output at the rising edge of the clock. |
| 16 | TDO | O | Tag code serial data output (MSB first). |
| 17 | TRP | O | Tag code update signal. Becomes "H" on completion of the correction operation for one block when there has been no error for the tag code. |
| 18 | TM5 | I | For IC test mode setting, normally not connected. |
| 19 | TSTIN1 | I | For IC test. Normally not connected. |
| 20 | TSTIN2 | | |
| 21 | A0 | O | External RAM address output. Address 0 (LSB) |
| 22 | A1 | O | External RAM address output. Address 1 |
| 23 | A2 | O | External RAM address output. Address 2 |
| 24 | A3 | O | External RAM address output. Address 3 |
| 25 | VDD | – | Power supply (+5 V) |
| 26 | A4 | O | External RAM address output. Address 4 |
| 27 | A5 | O | External RAM address output. Address 5 |
| 28 | GND | – | GND (0 V) |
| 29 | VDD | – | Power supply (+5 V) |
| 30 | A6 | O | External RAM address output. Address 6 |
| 31 | A7 | O | External RAM address output. Address 7 |

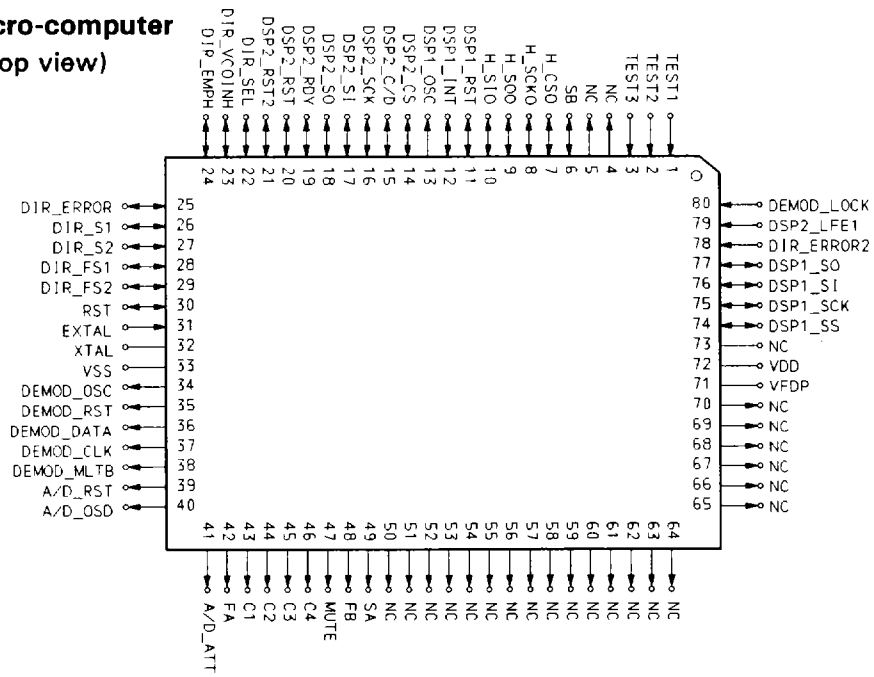
| No. | Pin Name | I/O | Description |
|---|---|---|---|
| 32 | GND | – | GND (0 V) |
| 33 | A12 | O | External RAM address output. Address 12 |
| 34 | A14 | O | External RAM address output. Address 14 (MSB) |
| 35 | WEB | O | External RAM write enable signal. Active with "L". |
| 36 | A13 | O | External RAM address output. Address 13 |
| 37 | A8 | O | External RAM address output. Address 8 |
| 38 | A9 | O | External RAM address output. Address 9 |
| 39 | A11 | O | External RAM address output. Address 11 |
| 40 | GND | – | GND (0 V) |
| 41 | OEB | O | External RAM output enable signal. Active with "L". |
| 42 | A10 | O | External RAM address output. Address 10 |
| 43 | DBP | I/O | External RAM data terminal. For erasure pointer. |
| 44 \| 51 | DB7 \| DB0 | I/O | External RAM data terminal. Data bus 7 \| External RAM data terminal. Data bus 0 |
| 52 | VDD | – | Power supply (+5 V) |
| 53 | GND | – | GND (0 V) |
| 54 | VO | O | VCXO output |
| 55 | VI | I | VCXO input |
| 56 | TESTIN3 | I | For IC test. Normally not connected. |
| 57 | PDO | O | Output of the phase comparator (3 states) |
| 58 | MSYC | O | "H" at the time of an AC−3 sync signal. For monitoring. |
| 59 | MUTO | O | Muting output. Muting with "H". Becomes "H" with "MUTI = H" or when AC−3 is not in sync. |
| 60 | VLDY | O | Output of the validity flag. Correct data with "L". |
| 61 | LRCK | O | L/R switching clock. 48 kHz. L channel with "H". |
| 62 | BCK | O | Bit clock. 3.072 MHz |
| 63 | SDO | O | Serial data output |
| 64 | DASYO | O | Digital out preamble B identification signal |
| 65 | DAOUT | O | Digital out output |
| 66 | DAIN | I | Digital audio interface signal input. According to the internal register setting, the signal from digital out processed in the IC and "DAIN" is selected and put out to "DAOUT". |
| 67 | TSTIN4 | I | For IC test. Normally not connected. |
| 68 | TSTIN5 | | |

| No. | Pin Name | I/O | Description |
|---|---|---|---|
| 69 | C2F1 | O | Indication of the C2 correction error status. Output whether complete correction was possible or not. |
| 70 | C2F0 | O | Indication of the C2 correction error status. Output of the number of errors with C2. |
| 71 | C1F1 | O | Indication of the C1 correction error status. Output of error or no error with C1. |
| 72 | C1F0 | O | Indication of the C1 correction error status. Output of the number of errors with C1. |
| 73 | DRY | O | For monitoring of the error correction section |
| 74 | DEN | O | For monitoring of the error correction section |
| 75 | ECCK | O | Clock of the error correction section. 576 kHz |
| 76 | TSTIN6 | I | For IC test. Normally not connected. |
| 77 | TSTIN7 | | |
| 78 | MUTI | I | Muting input. Muting with "H". |
| 79 | VDD | – | Power supply (+5 V) |
| 80 | GND | – | GND (0 V) |
| 81 | DOUT | O | QPSK inversion output |
| 82 | DIN | I | QPSK signal input |
| 83 | XSEL | I | Crystal selection. 46.08 MHz with "H", 36.864 MHz with "L". |
| 84 | | | |
| 85 | EPCK | O | QPSK eye pattern clock. 288 kHz |
| 86 | EYEI | O | Eye pattern output: Phase I |
| 87 | EYEQ | O | Eye pattern output: Phase Q |
| 88 | BTR | O | |
| 89 | ELB | O | |
| 90 | C9M | O | 9.216 MHz |
| 91 | TSTIN8 | I | For IC test. Normally not connected. |
| 92 | GND | – | GND (0 V) |
| 93 | IDST | O | Signal indicating the start position |
| 94 | IDCK | O | ID signal sample clock. The data change with the dropping edge of the clock. 576 kHz |
| 95 | IDO | O | ID data output (MSB first) |
| 96 | WINGT | O | Becomes "L" while the correction block sync signal is being searched. |
| 97 | SYST0 | O | Indicates the lock status of the correction block sync signal. |
| 98 | SYST1 | O | Indicates the lock status of the correction block sync signal. |
| 99 | ADST0 | O | Indicates the continuity status of the correction block ID address. |
| 100 | ADST1 | O | Indicates the continuity status of the correction block ID address. |

# ■ PDG168B (IC3501: AC-3 ASSY)

## ● AC-3 Control Micro-computer

## ● Pin Assignment (Top view)




## ● Pin Function

| No. | Pin Name | I/O | Description | CPU |
|---|---|---|---|---|
| 1 | TEST1 | I | "L" or "H" is set with an external resistor. At the time of "L" level, operation as microcomputer for AWX7016. At the time of "H" level, operation as microcomputer for AWX7017. | PE3/INT3 |
| 2 | TEST2 | I | Fixed to "L" with an external resistor. | PE4 |
| 3 | TEST3 | | | PE5 |
| 4 | NC | O | Not used terminal. | PE6 |
| 5 | | | | PE7 |
| 6 | SB | O | REAR channel output level control terminal 2. Connected to terminal B of IC3653. | PB0 |
| 7 | H_CSO | I/O | Chip selection I/O terminal for communication with the microcomputer on the set side. Connected to the CS terminal of CN3501. During communication with "L". | CSO_ |
| 8 | H_CSKO | I | Serial data transfer clock I/O terminal for communication with the microcomputer on the set side. Connected to the SCK terminal of CN3501. | SCKO_ |
| 9 | H_SOO | I | Serial data input terminal for communication with the microcomputer on the set side. Connected to the SO terminal of CN3501. Matched to the name of the microcomputer on the set side. The data I/O direction is opposite to the terminal name. | SIO |
| 10 | H_SIO | O | Serial data output terminal for communication with the microcomputer on the set side. Connected to the SI terminal of CN3501. Matched to the name of the microcomputer on the set side. The data I/O direction is opposite to the terminal name. | SOO |
| 11 | DSP1_RST | O | IC3301 reset control terminal. Reset with "L". Connected to the RESET terminal of IC3301. | PB5 |
| 12 | DSP1_INT | O | IC3301 interrupt control terminal, Interrupt with "L". Connected to the INT_ terminal of IC3301. | PB6 |
| 13 | DSP1_OSC | O | IC3301 oscillation control terminal. Oscillation with "H". Connected to the NC terminal of X3352. | PB7 |
| 14 | DSP2_CS | O | IC3401 serial data transfer chip selection output terminal. Under control with "L". Connected to the CS_ terminal of IC3401. | PC0 |

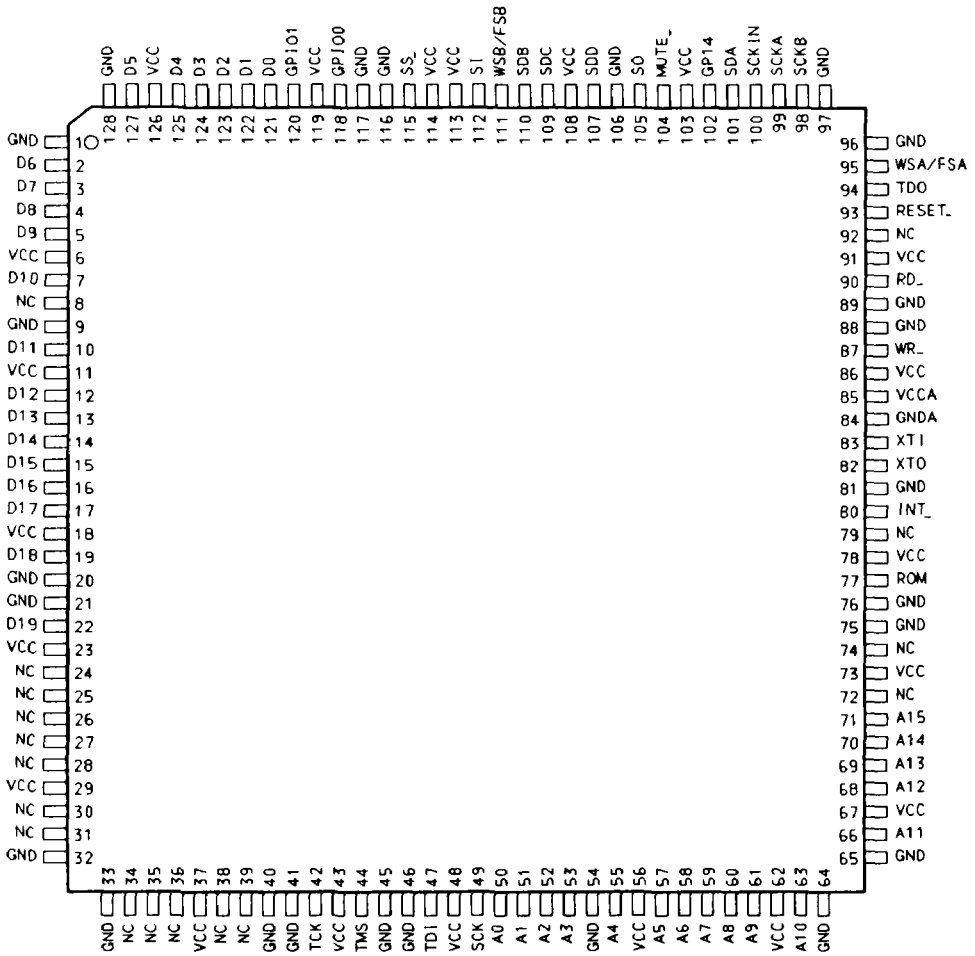
| No. | Name | I/O | Description | CPU |
|---|---|---|---|---|
| 15 | DSP2_C/D | O | IC3401 serial data transfer command/data switching control terminal. Connected to the C_/D terminal of IC3401. During command transfer with "L". During data transfer with "H". | PC1 |
| 16 | DSP2_SCK | O | IC3401 serial data transfer clock output terminal. Connected to the SCK_ terminal of IC3401. | PC2 |
| 17 | DSP2_SI | O | IC3401 serial data output terminal. Connected to the SI terminal of IC3401. Matched to the terminal name of IC3401. The data I/O direction is opposite to the terminal name. | PC3 |
| 18 | DSP2_SO | I | IC3401 serial data input terminal. Connected to the SO terminal of IC3401. Matched to the terminal name of IC3401. The data I/O direction is opposite to the terminal name. | PC4 |
| 19 | DSP2_RDY | I | IC3401 ready information input terminal. Connected to the RDY terminal of IC3401. "H" at the time of ready. | PC5 |
| 20 | DSP2_RST | O | IC3401 reset control terminal 1. Connected to the RST_ terminal of IC3401. | PC6 |
| 21 | DSP2_RST2 | O | IC3401 reset control terminal 2. Connected to the RST2_ terminal of IC3401. | PC7 |
| 22 | DIR_SEL | O | IC3102 input switching control terminal. Connected to the SELECT1 terminal of IC3102. | PA0 |
| 23 | DIR_VCOINH | O | IC3101 oscillation control terminal. Connected to the VCOINH_ terminal of IC3101. Oscillation stop with "L". | PA1 |
| 24 | DIR_EMPH | I | IC3101 emphasis information input terminal. Connected to the EMPH terminal of IC3101. "H" when the emphasis of the program source is ON. | PA2 |
| 25 | DIR_ERROR | I | IC3101 error information input terminal. Connected to the ERROR_ terminal of IC3101. "L" when DIR is not locked. | PA3 |
| 26 | DIR_S1 | O | IC3101 input switching control terminal 1. Connected to the S1 terminal of IC3101. | PA4 |
| 27 | DIR_S2 | O | IC3101 input switching control terminal 2. Connected to the S2 terminal of IC3101. | PA5 |
| 28 | DIR_FS1 | I | Sampling frequency information input terminal 1 for the IC3101 input signal. Connected to the FS1 terminal of IC3101. | PA6 |
| 29 | DIR_FS2 | I | Sampling frequency information input terminal 2 for the IC3101 input signal. Connected to the FS2 terminal of IC3101. | PA7 |
| 30 | RST | I | System reset input terminal. Connected to the RST terminal of CN3501. Reset with "L". | RST_ |
| 31 | EXTAL | I | Crystal connection terminal for system clock oscillation. When an external clock is to be supplied, input is made to the EXTAL terminal, and a clock with the reverse phase is given as input to the XTAL terminal. | EXTAL |
| 32 | XTAL | O | Crystal connection terminal for system clock oscillation. When an external clock is to be supplied, input is made to the EXTAL terminal, and a clock with the reverse phase is given as input to the XTAL terminal. | XTAL |
| 33 | VSS | – | GND terminal. | Vss |
| 34 | DEMOD_OSC | O | IC3001 oscillation control terminal. Connected to the NC terminal of X3003. Oscillation with "H". | PD0 |
| 35 | DEMOD_RST | O | IC3001 reset control terminal. Connected to the RESET terminal of IC3001. Reset with "L". | PD1 |
| 36 | DEMOD_DATA | O | IC3001 serial data output terminal. Normally not used. Connected to the DATA terminal of IC3001. | PD2 |
| 37 | DEMOD_CLK | O | IC3001 serial data transfer clock output terminal. Normally not used. Connected to the MCK terminal of IC3001. | PD3 |
| 38 | DEMOD_MLTB | O | IC3001 serial data output terminal. Normally not used. Connected to the MLTB terminal of IC3001. | PD4 |
| 39 | A/D_RST | O | IC3241 reset control terminal. Connected to the PD terminal of IC3241. | PD5 |

| No. | Name | I/O | Description | CPU |
|---|---|---|---|---|
| 40 | A/D_OSC | O | IC3241 oscillation control terminal. Oscillation with "L". Connected to the B terminal of Q3251. | PD6 |
| 41 | A/D_ATT | O | IC3241 input attenuation control terminal. Attenuation with "L". | PD7 |
| 42 | FA | O | FRONT channel output level control terminal 1. Connected to the A terminal of IC3603. | PF0 |
| 43 | C1 | O | SW sound output control terminal. Output to the FRONT channel with "H". Connected to the C1 terminal of IC3771. | PF1 |
| 44 | C2 | O | SW sound output control terminal. Output to the REAR channel with "H". Connected to the C2 terminal of IC3771. | PF2 |
| 45 | C3 | O | SW sound output control terminal. Output to the SW channel with "H". Connected to the C3 terminal of IC3771. | PF3 |
| 46 | C4 | O | SW sound output control terminal. Output to the CENTER channel with "H". Connected to the C4 terminal of IC3771. | PF4 |
| 47 | MUTE | O | Output muting control terminal. Muting with "H". | PF5 |
| 48 | FB | O | FRONT channel output level control terminal 2. Connected to the B terminal of IC3603. | PF6 |
| 49 | SA | O | REAR channel output level control terminal 1. Connected to the A terminal of IC3653. | PF7 |
| 50 \| 54 | NC | O | Not used | S16 \| S20 |
| 55 \| 62 | NC | O | Not used | T15/S21 \| T8/S28 |
| 63 \| 70 | NC | O | Not used | T7 \| T0 |
| 71 | VFDP | – | Power supply terminal for FDP. | VFDP |
| 72 | VDD | – | Positive power supply terminal. | VDD |
| 73 | NC | – | Connected to VDD at the time of normal operation. | NC |
| 74 | DSP1_SS | O | IC3301 serial data transfer slave selection control terminal. Slave with "L". Connected to the SS_ terminal of IC3301. | PG0 |
| 75 | DSP1_SCK | O | IC3301 serial data transfer clock output terminal. Connected to the SCK terminal of IC3301. | PG1 |
| 76 | DSP1_SI | O | IC3301 serial data output terminal. Connected to the SI terminal of IC3301. Matched to the terminal name of IC3301. The data I/O direction is opposite to the terminal name. | PG2 |
| 77 | DSP1_SO | I | IC3301 serial data input terminal. Connected to the SO terminal of IC3301. Matched to the terminal name of IC3301. The data I/O direction is opposite to the terminal name. | PG3 |
| 78 | DIR_ERROR2 | I | IC3101 error information input terminal. Connected to the ERROR_ terminal of IC3101. "L" when DIR is not locked. | PE0/INT0 |
| 79 | DSP2_LFE1 | I | IC3401 low frequency sound (LFE) detection information input terminal 1. Connected to the GF1 terminal of IC3401. "H" when low frequency sound (LFE) is detected. | PE1/INT1 |
| 80 | DEMOD_LOCK | I | IC3001 lock information input terminal. Connected to the MUT0 terminal of IC3001. "H" when the demodulator (IC3001) is not locked. | PE2/INT2 |

## ■ ZR38500 (IC3301: AC-3 ASSY)

### ● AC-3 Decoder

● Pin Assignment (Top View)




● Pin Function

| No. | Pin Name | Description |
|---|---|---|
| 1 | GND | ——— |
| 2 \| 5 | D6 \| D9 | This is a bidirectional data bus for external memory access. |
| 6 | VCC | ——— |
| 7 | D10 | This is a bidirectional data bus for external memory access. |
| 8 | NC | ——— |
| 9 | GND | ——— |
| 10 | D11 | This is a bidirectional data bus for external memory access. |
| 11 | VCC | ——— |

| No. | Pin Name | Description |
|---|---|---|
| 12 \| 17 | D12 \| D17 | This is a bidirectional data bus for external memory access. |
| 18 | VCC | ——— |
| 19 | D18 | This is a bidirectional data bus for external memory access. |
| 20 \| 21 | GND | ——— |
| 22 | D19 | This is a bidirectional data bus for external memory access. |
| 23 | VCC | ——— |
| 24 \| 28 | NC | ——— |

| No. | Pin Name | Description |
|---|---|---|
| 29 | VCC | ——— |
| 30 | NC | ——— |
| 31 | | |
| 32 | GND | ——— |
| 33 | | |
| 34 | NC | ——— |
| \| | | |
| 36 | | |
| 37 | VCC | ——— |
| 38 | NC | ——— |
| 39 | | |
| 40 | GND | ——— |
| 41 | | |
| 42 | TCK | ICE interface clock (JTAG) |
| 43 | VCC | ——— |
| 44 | TMS | ICE interface mode select (JTAG) |
| 45 | GND | ——— |
| 46 | | |
| 47 | TDI | ICE interface data input (JTAG) |
| 48 | VCC | ——— |
| 49 | SCK | Serial port interface: clock input (SPI) |
| 50 | A0 | Address bus |
| \| | \| | |
| 53 | A3 | |
| 54 | GND | ——— |
| 55 | A4 | Address bus |
| 56 | VCC | ——— |
| 57 | A5 | Address bus |
| \| | \| | |
| 61 | A9 | |
| 62 | VCC | ——— |
| 63 | A10 | Address bus |
| 64 | GND | ——— |
| 65 | | |
| 66 | A11 | Address bus |

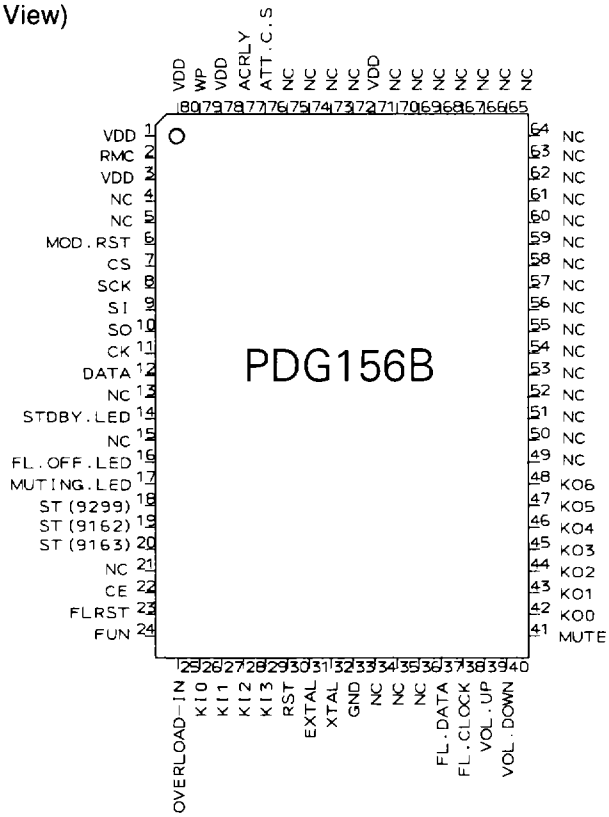
| No. | Pin Name | Description |
|---|---|---|
| 67 | VCC | ——— |
| 68 | A12 | Address bus |
| \| | \| | |
| 71 | A15 | |
| 72 | NC | ——— |
| 73 | VCC | ——— |
| 74 | NC | ——— |
| 75 | GND | ——— |
| 76 | | |
| 77 | ROM | Memory select signal |
| 78 | VCC | ——— |
| 79 | NC | ——— |
| 80 | INT__ | External interrupt input |
| 81 | GND | ——— |
| 82 | XTO | Crystal oscillator input/output terminal |
| 83 | XTI | |
| 84 | GNDA | ——— |
| 85 | VCCA | ——— |
| 86 | VCC | ——— |
| 87 | WR__ | Write strobe |
| 88 | GND | ——— |
| 89 | | |
| 90 | RD__ | Read strobe |
| 91 | VCC | ——— |
| 92 | NC | ——— |
| 93 | RESET__ | Reset input |
| 94 | TDO | ICE interface data output (JTAG) |
| 95 | WSA/FSA | Group A serial port (for input) word selection or frame sync input/output. |
| 96 | GND | ——— |
| 97 | | |
| 98 | SCKB | Clock input/output for group B serial port |
| 99 | SCKA | Clock input/output for group A serial port |

| No. | Pin Name | Description |
|---|---|---|
| 100 | SCKIN | Clock input/output for group B serial port |
| 101 | SDA | Data input for serial port A |
| 102 | GP14 | General-purpose input pin |
| 103 | VCC | ——— |
| 104 | MUTE__ | Mute pin |
| 105 | SO | Serial port interface: serial data output (SPI) |
| 106 | GND | ——— |
| 107 | SDD | Data output for serial port D |
| 108 | VCC | ——— |
| 109 | SDC | Data output for serial port C |
| 110 | SDB | Data output for serial port B |
| 111 | WSB/FSB | Group B serial port (for input) word selection or frame sync input/output. |
| 112 | SI | Serial port interface: serial data input (SPI) |
| 113<br>114 | VCC | ——— |
| 115 | SS__ | Serial port interface: slave select input (SPI) |
| 116<br>117 | GND | ——— |
| 118 | GPIO0 | General-purpose input/output pin |
| 119 | VCC | ——— |
| 120 | GPIO1 | General-purpose input/output pin |
| 121<br>125 | D0<br>D4 | This is a bidirectional data bus for external memory access. |
| 126 | VCC | ——— |
| 127 | D5 | This is a bidirectional data bus for external memory access. |
| 128 | GND | ——— |

# ■ PDG156B (IC301:POWER SUPPLY ASSY)

## ● AC-3 PROCESSOR U-COM.

●Pin Assignment (Top View)

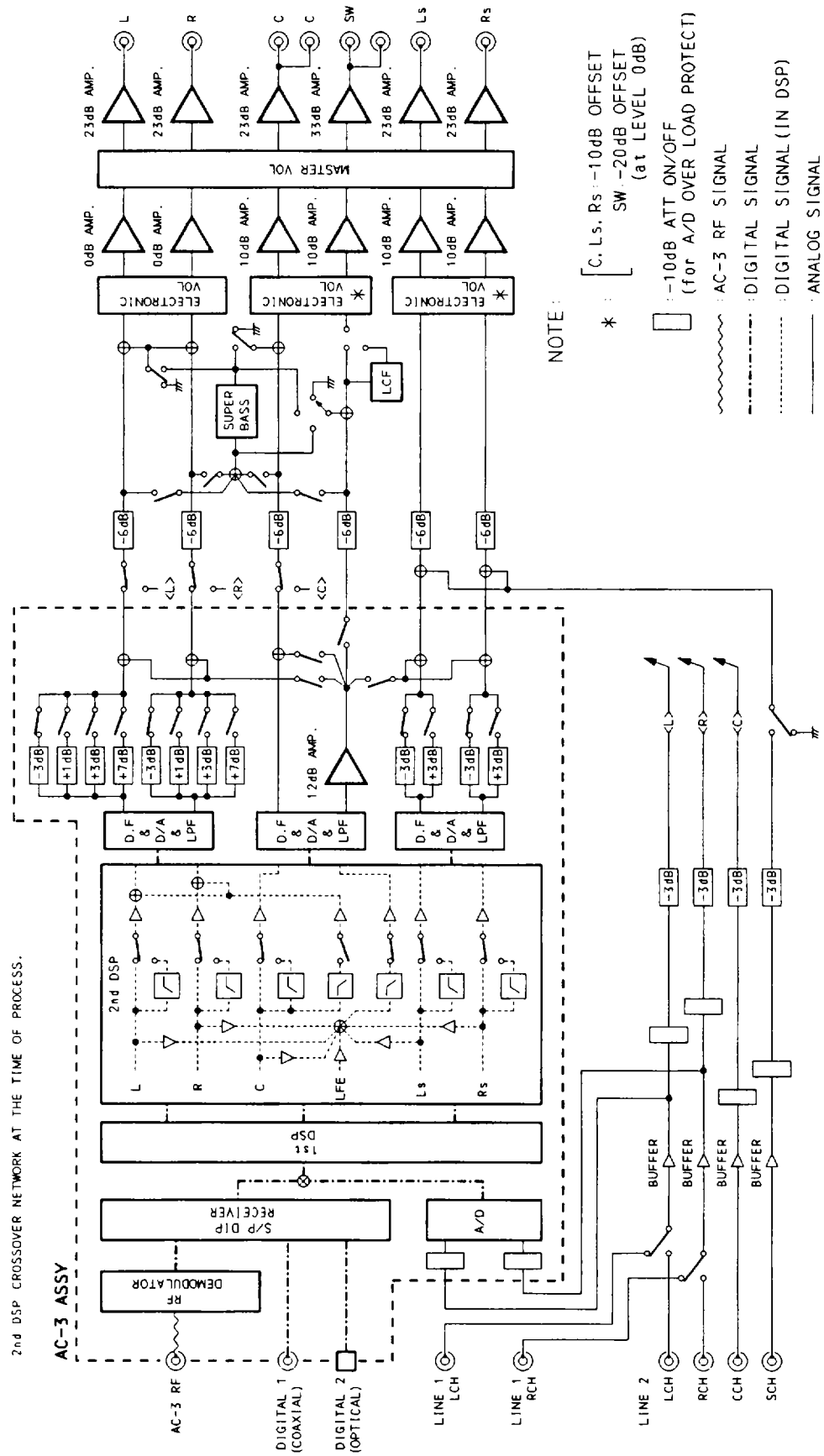



●Pin Function

| No. | Pin Name | Pin Function | I/O | Function |
|---|---|---|---|---|
| 1 | PE3 | ——— | I | Not Used (Connected to VDD) |
| 2 | PE4 | RMC | I | Remote Control Signal Input |
| 3 | PE5 | ——— | I | Not Used (Connected to VDD) |
| 4 | PE6 | ——— | O | Not Used (N. C. ) |
| 5 | PE7 | ——— | O | Not Used (N. C. ) |
| 6 | PB0 | MOD RST | O | Control micro-computer reset port for AC-3 module |
| 7 | PB1 | CS | I/O | Control micro-computer bidirectional communication for AC-3 module (CS) |
| 8 | PB2 | SCK | O | Control micro-computer bidirectional communication for AC-3 module (CLOCK) |
| 9 | PB3 | SI | I | Control micro-computer bidirectional communication for AC-3 module (DATA IN) |
| 10 | PB4 | SO | O | Control micro-computer bidirectional communication for AC-3 module (DATA OUT) |
| 11 | PB5 | CK | O | Function SW/Electronic Volume CLOCK |
| 12 | PB6 | DATA | O | Function SW/Electronic Vlume DATA |
| 13 | PB7 | ——— | O | Not Used (N. C. ) |
| 14 | PC0 | STANDBY LED | O | STAND BY LED H:OFF L:ON |
| 15 | PC1 | ——— | O | Not Used (N. C. ) |
| 16 | PC2 | FL OFF LED | O | DISPLAY OFF LED H:OFF L:ON |
| 17 | PC3 | MUTING LED | O | MUTING LED H:OFF L:ON (Flashing) |
| 18 | PC4 | ST(9299) | O | Electronic Volume STROBE |

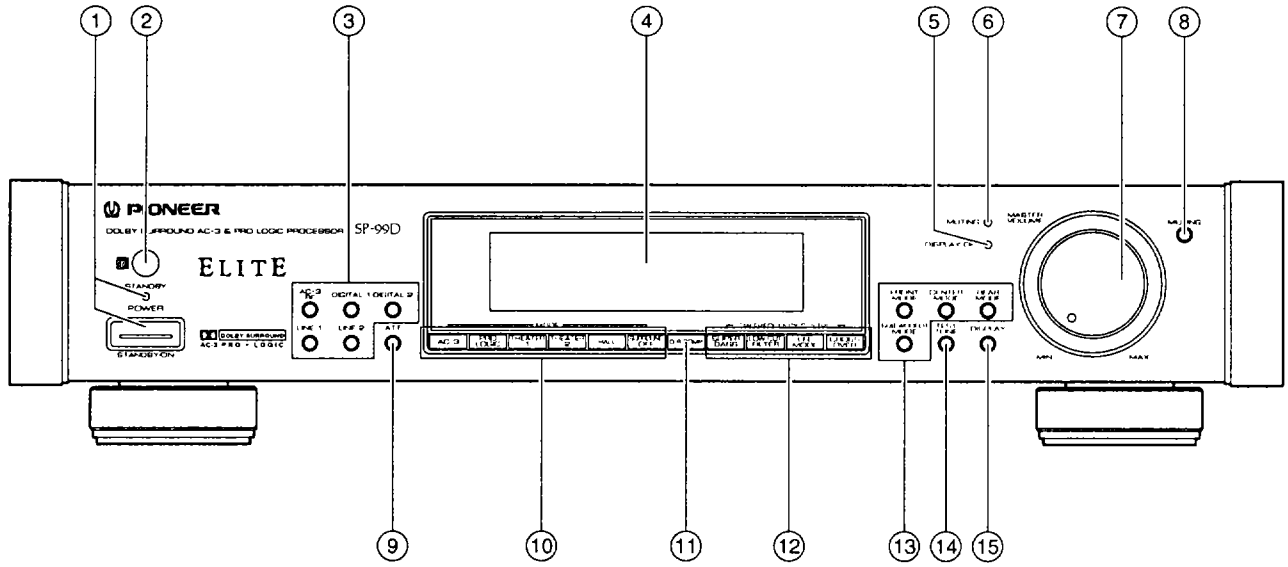
| No. | Pin Name | Pin Function | I/O | Function |
|---|---|---|---|---|
| 19 | PC5 | ST(9162) | O | Function SW (TC9162AN) STROBE |
| 20 | PC6 | ST(9163) | O | Function SW (TC9163AN) STROBE |
| 21 | PC7 | ——— | O | Not Used (N.C.) |
| 22 | PA0 | CE | O | FL DRIVER (LC75712) CE |
| 23 | PA1 | FL RST | O | FL DRIVER (LC75712) RESET |
| 24 | PA2 | FUN | I | A/D Thermistor Temperature |
| 25 | PA3 | OVERLOADIN | I | A/D OVER LOAD INPUT |
| 26 \| 29 | PA4 \| PA7 | KIO \| K13 | I | KEY SCAN KEY INPUT 0 \| KEY SCAN KEY INPUT 3 |
| 30 | RST | RST | I | RESET |
| 31 | EXTAL | EXTAL | I | Conrected to System Clock (8.0MHz) |
| 32 | XTAL | XTAL | | Conrected to System Clock (8.0MHz) |
| 33 | VSS | GND | | GND |
| 34 \| 36 | PD0 \| PD2 | ——— | O | Not Used (N. C. ) |
| 37 | PD3 | FL DATA | O | FL DRIVER (LC75712) DATA |
| 38 | PD4 | FL CLOCK | O | FL DRIVER (LC75712) CLOCK |
| 39 | PD5 | VOL UP | O | Electronic Volume Driver IC Control PORT |
| 40 | PD6 | VOL DOWN | O | P39: HI P40: LOW..VOLUME UP P39: LOW P40: HI..VOLUME DOWN |
| 41 | PD7 | MUTE | O | MUTING HI: MUTE OFF LOW: MUTE ON |
| 42 \| 48 | PF0 \| PF6 | KO0 \| KO6 | O | KEY SCAN KEY OUTPUT 0 \| KEY SCAN KEY OUTPUT 6 |
| 49 | PF7 | ——— | O | Not Used (N. C. ) |
| 50 \| 54 | S16 \| S20 | ——— | O | Not Used (N. C. ) |
| 55 \| 70 | T15 \| T0 | ——— | O | Not Used (N. C. ) |
| 71 | VFDP | ——— | | Not Used (N. C. ) |
| 72 | VDD | VDD | | Positive power supply |
| 73 | NC | ——— | | Connected to VDD |
| 74 | PG0 | ——— | O | Not Used (N. C. ) |
| 75 | PG1 | ——— | O | Not Used (N. C. ) |
| 76 | PG2 | ATT.C.S. | O | ANALOG INPUT ATT HI: ATT ON LOW: ATT OFF |
| 77 | PG3 | AC RLY | O | POWER ON HI: POWERON LOW: POWER OFF |
| 78 | PE0 | ——— | I | Not Used (Connected to VDD) |
| 79 | PE1 | WP | I | AC50/60 PULSE INPUT |
| 80 | PE2 | ——— | I | Not Used (Connected to VDD) |

# 7. BLOCK DIAGRAM



# 8. PANEL FACILITIES

## FRONT PANEL (For SP-99D)




### ① POWER STANDBY/ON switch and STANDBY indicator

This is the switch for electric power.

**ON** : When set to the ON position, power is supplied and the unit becomes operational.

**STANDBY** : When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.
The STANDBY indicator lights during standby.

After switching power ON, there is no sound for about five seconds. During this time, the STANDBY indicator flashes.

### ② Remote sensor

### ③ Input selector buttons

**AC-3 RF** : Press when playing an AC-3 (Dolby Surround Digital) compatible disc on a LaserDisc player connected to the AC-3 RF INPUT jack.

**DIGITAL 1** : Press when playing a component connected to the DIGITAL 1 INPUT with a coaxial cable.

**DIGITAL 2** : Press when playing a component connected to the DIGITAL 2 INPUT with an optical fiber cable.

**LINE 1** : Press when playing components connected to an amplifier that's connected to the LINE 1 jacks.

**LINE 2** : Press when playing components connected to an amplifier that's connected to the LINE 2 jacks.

### ④ Display

### ⑤ DISPLAY OFF indicator

This lights when DISPLAY is off.

### ⑥ MUTING indicator

This flashes when MUTING is on.

### ⑦ MASTER VOLUME control

Use it to simultaneously adjust the sound volume from the front, center, rear, and sub-woofer speakers.

### ⑧ MUTING button

Press to temporarily stop sound output. Press again to resume listening.

### ⑨ ATT (Attenuator) button

Press on, and audio input sensitivity is attenuated (–10 dB) to prevent clipping due to excessively high input levels. Switch this on if the overload indicator in the display section lights during playback. When you switch it on, the ATT indicator lights.

### ⑩ Surround/SFC Mode buttons

**AC-3:**
This operates only when you select DIGITAL 1 or DIGITAL 2 with the input selector buttons.
Pressing this button lets you switch between a component with an AC-3 digital audio output*1 and a component with another digital audio output, such as a CD player or LaserDisc player.

**PRO LOGIC:**
Switches DOLBY PRO-LOGIC SURROUND on/off.
When you select AC-3, it does not operate for auto select.

**THEATER 1, THEATER 2:**
Select when viewing video software. THEATER 2 provides a more mellow sound than THEATER 1.

**HALL:**
Select for concert hall ambience when enjoying music or other sources.

**SURROUND OFF:**
Switches surround mode (including DOLBY PRO-LOGIC) off.

***NOTE:***
*This unit features a function for memorizing surround/SFC mode settings for each input function. This lets you store surround/SFC mode settings you often use for each function.*

*1 You will be able to connect this unit to future components with AC-3 digital outputs.

### ⑪ D.R.COMP (Dynamic Range Compression) button

When the command for dynamic range compression of an AC-3 source's original signal has been specified, press this button and this unit compresses the dynamic range for an audibly improved SN ratio.

***NOTE:***

*When the command for dynamic range compression of an AC-3 source is not specified, or during playback other than AC-3, the original signal level remains unchanged even if you press this button.*

### ⑫ Low Frequency Control buttons

**SUPER BASS:**

Press this button when you want to boost the bass.
Frequencies in the 100 Hz and below range are boosted.

**LOW CUT FILTER:**

This improves the sub-woofer sound by cutting frequencies in the 40 Hz and below range. (This enables bass boosting while reducing the possibility of the sub-woofer clipping.)

**LFE (Low Frequency Effect) MODE:**

Sets the sub-woofer LFE channel attenuation level.
The setting changes as follows each time you press it:

→ +10 dB → 0 dB → OFF →

The recommended level for Dolby surround is +10 dB.

***NOTE:***

*If you set to "+10 dB", front three channels (L + R + C) output power is required for the sub-woofer. If this is more power than the sub-woofer can handle, clipping may occur resulting in distortion.*

**CROSSOVER*2:**

Use to set the crossover frequency.
The setting changes as follows each time you press it:

→ 100 Hz → 150 Hz → 200 Hz →

*2 Crossover

This function is convenient when a speaker is too small to reproduce low range frequencies, or when there is no sub-woofer connected. The low range frequencies that cannot be reproduced (80 to 100 Hz or lower), or sub-woofer signals, are automatically rerouted to connected speakers that can reproduce low frequencies within a set range. With the CROSSOVER button you can select the low frequency range below which signals are distributed to different channels.

### ⑬ Speaker setting buttons

Set the size of the connected speakers and whether speakers are connected or not.

### ⑭ TEST TONE button

Switches test tone output used for adjusting the volume level of each channel (except the sub-woofer) on/off.
It does not operate when surround is off.

### ⑮ DISPLAY button

Switches the display section on/off. When switched off, the ⑤ DISPLAY OFF indicator lights.

# 9. SPECIFICATIONS

**Audio section**

Input Jacks (Sensitivity/Impedance)

| | |
|---|---|
| LINE 1, 2 | 200 mV/45 kΩ |
| DIGITAL 1 (COAXIAL) | 0.5 Vp-p/75 Ω |
| AC-3 RF | 0.4 Vp-p/75 Ω |

Output Jacks (Level/Impedance)

| | |
|---|---|
| FRONT, CENTER, REAR, SUB WOOFER | 1 V/1 kΩ |

Frequency Response

| | |
|---|---|
| LINE 1, 2 | 10 Hz to 100 kHz ±3 dB |
| DIGITAL 1, 2 | 20 Hz to 20 kHz ±3 dB |
| AC-3 RF | 20 Hz to 20 kHz ±3 dB |

| | |
|---|---|
| Total Harmonic Distortion (1 kHz) | 0.008 % |

SN Ratio (A network)

DIGITAL 1, 2
PCM full-scale input with 2V output level 20 kHz, LPF ON ... 98 dB

**Miscellaneous**

| | |
|---|---|
| Power Supply Voltage | AC 120 V, 60 Hz |
| Power Consumption | 45 W |
| External Dimensions | 456 (W) x 92 (H) x 335 (D) mm<br>18 (W) x 4 (H) x 13 (D) in |
| Weight | 6.0 kg (13 lb 4 oz) |

**Accessories**

| | |
|---|---|
| Remote Control Unit | 1 |
| Dry Cell Batteries (size AAA/R03) | 2 |
| Audio Cord | 3 |
| AC-3/RF Cord | 1 |
| Operating Instructions | 1 |

***NOTE:***

*The above specifications and external features may change without notice, due to modifications.*